



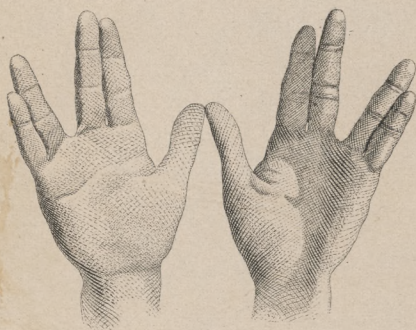
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v.1

Dear Dr. When I was last here you  
expressed a desire to see the notes of  
Yr. Course of 56-7 which I had taken  
although crude efforts of an ignorant  
first course student - for I knew surgery  
but in name - I prize them dearly -  
when I can no longer look at them  
they are to be preserved in the Library  
of the College of Physicians of the City of New York

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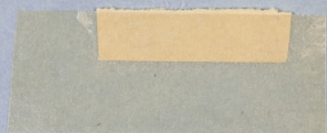
Philadel

1856

Morris J. Arch.

A







Lectures on Surgery  
by Prof. Grop.  
Samuel David

Notes of First Course  
in Jefferson Medical College

1856-7

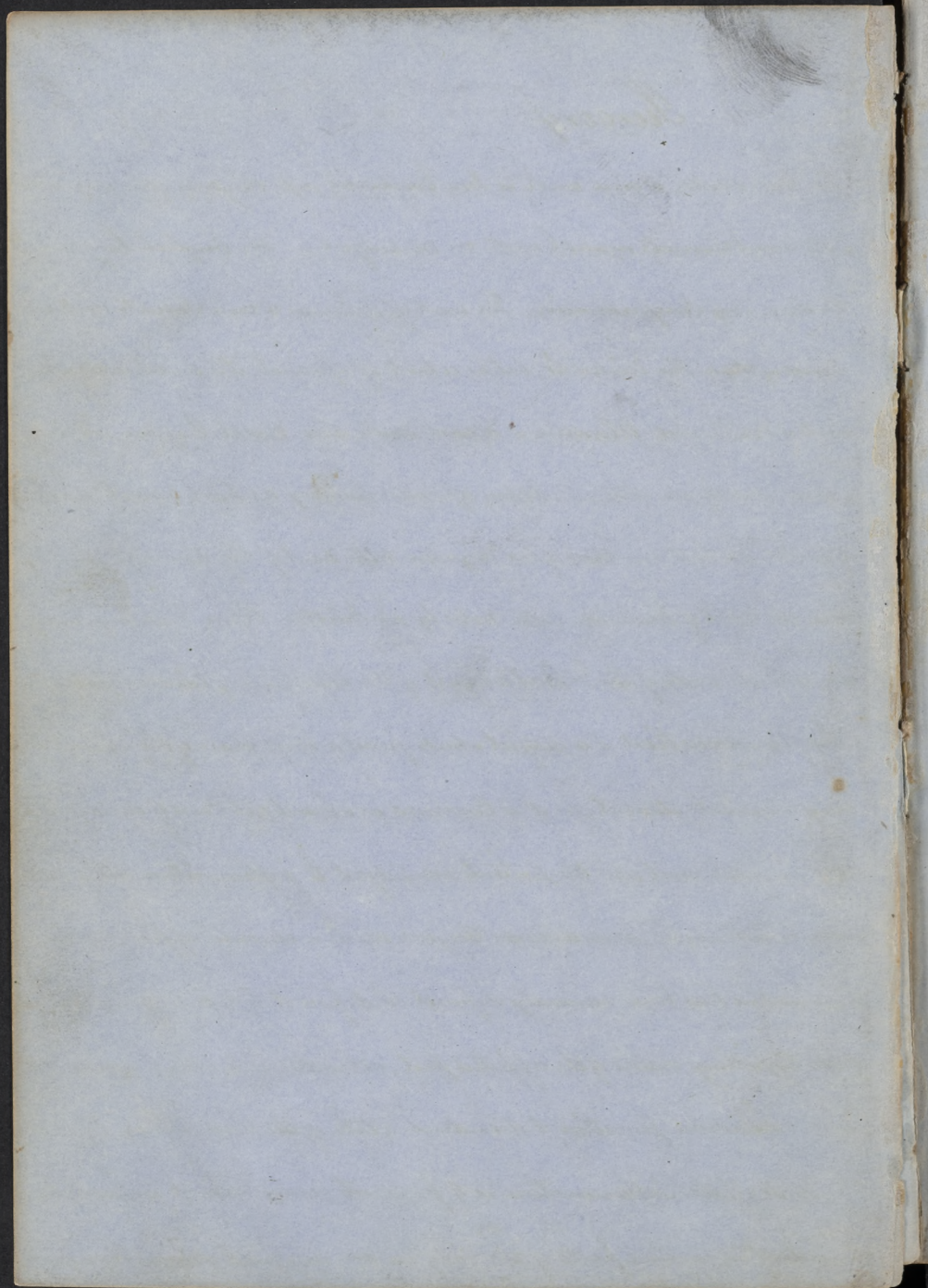
as taken down by

J. S. Cohen

Continued in Vol I

& concluded in Vol II







# Surgery.

For text books, a good work is *Mr. Erichsen's art & Science of Surgery*, which is the most elaborate original work on the subject in the English language, & is also very comprehensive. The work of *Albucasis* is a more elaborate work on Surgery than *Mr. Erichsen's*, but as a book of reference, it is invaluable. The work of *Mr. Pining Aberdeen* is a good work, also the work of *Mr. Astruc* which is only an abstract. Upon operative Surgery we have a great number of works, the best are those of *Mr. Ferguson* & the work of *Prof. Parovost*. We have also the work of *Mr. Liston* with notes by *Mr. Hunter*. Upon Military Surgery we have the works of *Sir J. Ballingall* of the University of Edinburgh.

Inflammation is a subject which forms a large share of the studies of every medical student, for it is concerned in almost all cases of disease. In every Hospital most all the patients are subject to inflammation either externally or internally, according as they are acute or chronic affections. Inflammation has been variously defined. I define it to be a <sup>or</sup> protracted action of the Capillary vessels of the affected part, attended by swelling, redness, heat, pain, & disordered function & disordered state of the blood. All we know of it is by its effects. Inflammation is of frequent occurrence, it is liable to show itself in various parts of the body in an unequal degree. The organs

& tissues of the body are differently organised, their structures are different, they  
 are differently arranged & supplied differently with blood vessels, nerves  
 & absorbents, & hold different relations in regard to the functions of physical  
 Economy. It is owing to these circumstances that different organs are differ-  
 ently affected by inflammation. We find the Mucous & Serous Membranes, which  
 are a particular form of cellular tissue, are greatly Subject to inflammation.  
 & its consequences. In the bones & similar structures the reverse is the case,  
 for they have lives of their own, relations of their own, are not so much exposed, &  
 their liability to inflammation is not as great. Some particular organs of the  
 body as the lungs, liver, & Spleen & others are again different. The lungs  
 have large quantities of blood absorbents Connected by Serous & mucous  
 membranes. The liver is Comparatively Seldom affected, because it is  
 Concealed & not exposed as the lungs are, but is Subject to particular chronic  
 diseases. The Spleen which is highly organised performs no very important  
 functions, which functions are unknown & it has Comparatively few diseases.  
 The Skin which is in immediate relation to the external world &  
 highly vascular is the Subject of frequent inflammation. The Brain  
 is the Seat of the intellectual faculties & of the animal passions & is  
 Comparatively Seldom the Seat of disease though it is highly organised.



The reason we cannot tell. The season of the year has a great influence upon inflammation. Inflammation of the lungs & pleura are common in the cold winter months in every community. In the warm weather, the mucous membranes are more particularly affected. Inflammation is influenced by age. In childhood, inflammation of the stomach & bowels constitutes Cholera Infantum, a disease almost peculiar to this climate & to that particular age & occurs more especially in the warmer latitudes. Ascariasis is more common in early childhood than when persons are advanced in life & in middle age. Inflammation is most frequent in old subjects, inflammation of the liver is more frequent in old persons than in young ones, so with regard to inflammation of the spleen kidneys &c. The genital organs never become the seat of inflammation until after the age of puberty, so that age exercises an influence upon the frequency of this morbid action. The same is true with regard to climate. Croup is more frequent in the Eastern states. Inflammation of the liver is most common in the South & still more so in the East Indies. There are many varieties of inflammation; healthy & unhealthy, acute & chronic, latent & intermittent. By an acute inflammation we mean one in which the morbid action is rapid & well marked in its character, characterised by increased action of the capillary vessels, with redness, heat, pain, altered condition of the blood & if it be not checked in a few days it gives rise, & deposits frequently of a very

serious character, Serous fluid, or lymph, or deposits of purulent matter & may end in the destruction of the life of the part or the life of the individual.

The Chronic sort, relates to time, where the morbid action is slow, the Symptoms are less distinctly marked, where the alteration of the blood is less than in acute Cases, less heat, swelling, less pain & less discoloration which is not so vivid or red as in the acute state of disease. This is often ~~one~~ result of the acute disease, where acute Cases are in a modified degree. This is exemplified in the Case of Gonorrhoea, or Clap as it is vulgarly called. The individual for 4 days after Connection has inflammation of the innermost Membrane of the Urethra, followed by an itching Sensation, which is followed by a discharge of purulent matter, by pain & heat & scalding in passing water, by increase in the size of this organ. This goes on for 6 or 8 days & is an Example of acute inflammation. The Symptoms are violent & well marked, it afterwards yields to treatment, or subsides spontaneously, leaving a scalding Sensation when passing water & a discharge of white matter called gleet. Inflammation may be healthy or unhealthy. It is too often regarded as a disease, as tending to the destruction of the affected part. In venerection, the inflammation ensuing is a healthy one & is also healthy when it occurs in other parts of the body under other circumstances.



By an unhealthy inflammation is meant one ensuing after an operation where there has not been a true & acute inflammation, where the union of the parts is imperfect & where the action has been unhealthy.

**II** With the exception of the Epidermis, all the parts of the body are liable to be assailed by inflammation; it may be latent or intermittent. A common inflammation is one to which all mankind are subject, & may be idiopathic or the result of an injury. By a specific inflammation we mean one which is in every respect peculiar. We have what is denominated Cancer, which is described under the name of Malignant, as tending to destroy the life of the individual. This is not the case with Common inflammation. If we examine a <sup>typical</sup> ~~Serious~~ affection as occurs in the mammary gland we find it manifests itself first in the form of a little tumor, hard from the very commencement, it soon expands greatly & grows into a tumor large as a walnut or hen's egg, hardness is one characteristic property, & a sharp pain is a peculiar characteristic. Make a section of such a tumor & it presents a white, fibrous slightly yellowish appearance, looking like the section of a tumor or like substance. If we scrape it we find a fluid peculiar to this disease & if we put it under the microscope we see a number of cells of round

It is a new deposit, a specific disease, commencing in a certain way,

characterized by certain anatomical properties peculiar to itself, peculiar in  
 regard to its sustenance & effect, in regard to the lesion which gives rise  
 to it, in regard to the contamination of the surrounding lymphatic glands, &  
 peculiar in the manner in which it destroys life. Gonorrhoea is a specific  
 inflammation & depends on the power of the Virus, by which another person  
 can be inoculated. So in regard to <sup>Chancres</sup> ~~infectious~~, if 7 or 8 days after its appearance  
 you place a portion of the matter upon any portion of another body you produce  
 a <sup>Chancere</sup> ~~chancre~~ there, this is produced by inflammation & is different from  
 Gonorrhoea, So in regard to the matter of Small pox, malignant pustule &c.  
 Inflammation is <sup>said to be inevitable when</sup> ~~marked~~ by Suppuration, there is much Swelling in the part & an  
 unhealthy discharge. We have an example in ulcers of the lower extremities.  
 It occurs on the anterior & inner portion of the leg & there is considerable Swelling  
 & pain with disordered function of the part. The Surface is in a high state of  
 inflammation, the granulations are unhealthy, improperly developed, the Surface  
 has coagulations of lymph; touch such an ulcer & blood will flow & issue fit  
 is attended with great Suffering. This is an inevitable ulcer. Also in Strumous  
 Ophthalmia, occurring in Strumous diathesis attended with great Sensibility  
 of the eye. Inflammation may be latent or consolidated, look at an individ-  
 ual affected with Syphilitic Fever, he lies before you, with delirium bear




stammering in its character, tongue coated & red, gums covered with Sordes as  
are also his teeth, the tongue in a state of torpor, pulso feble, Extremities disposed  
to be cold, & he does not complain of pain, even when perfectly Conscious; he  
will bear severe pressure on the abdomen; he dies; examine the glands of <sup>Peyer</sup> ~~the~~ they  
are in a state of ulceration & not inflammation: this, then, has been an inflammation  
in a state of latency. You have inflammation of this kind in the lungs. Inflammation  
is occasionally intermittent, as in Neuralgia, which is not always an inflammatory  
affection though frequently so. This disease Comes & goes like an attack of intermittent  
fever, particularly when it is of a miasmatic character, & continues, until cured  
by Quinine, Aconite, or other articles. Redness is one of the most considerable &  
valuable symptoms of inflammation, nearly always present in a greater or less  
extent, but may be occasionally absent. The discoloration of the affected part  
varies in degree & in character, it may be slight or great, depending generally upon  
the amount of inflammatory action & especially on the nature of the affected structures.  
It may be circumscribed or diffused, it may be presented in the form of a rose spot  
according to circumstances. In Erysipelas, the inflammation is diffused. In a boil the  
redness is limited, in some instances occurs in the form of dots & points, particu-  
larly in the mucous membrane of the alimentary Canal; Sometimes it occurs in  
the form of lines or streaks, as in the case of the lymphatic vessels or veins

The redness varies in its intensity depending upon the intensity of the morbid action & the vascularity of the affected part. The discoloration is greatest at the center of the morbid action, from this it gradually fades until lost in the surrounding structures. In some instances the termination is very abrupt, there is a distinct line of demarcation between the healthy & unhealthy tissues. The redness varies in its degree & in its character, as it may be scarlet, or of a pale reddish appearance, or lilac, or gray, or black, as in the case of *Scitis*, or a red with an inclination to yellow as in *erysipelas*, or of a copper color in the eruptions which characterize Secondary Syphilis, or blue as in <sup>infected</sup> ~~infected~~ ulcers; & these are important facts as they determine the nature of the morbid action going on. In *Scitis*, there is a sluggish contracted pupil with discoloration of the iris. In inflammation of the Sclerotic Coat of the eye, there is a blue appearance, the vessels being very small, & present a different appearance from inflammation of the Conjunctiva, in which the vessels are large & there is a scarlet discoloration. When a part is in a state of inflammation the morbid action may be so violent as to destroy the part in the life of the patient, & when you come to post-mortemise the individual, you may not find the slightest discoloration in the structure; this is because, in the natural state we cannot discover any blood vessels in the affected part as in the conjunctival membrane, although it must have blood vessels in



abundance. The only evidence is an effusion of serum, an effusion of circulating Lymph, which are the tests which evince the morbid action. In other parts of the body the same is nearly true. This discoloration is produced by the vessels becoming dilated & the blood forced into them. There is an injection of vessels previously existing, but which, in a healthy condition contain no blood, or in such minute quantity as to produce no effect on the color of the walls of the ~~mucous~~ membrane, through & about which these vessels pass. When this injection has been carried to a great extent, the discoloration becomes changed in its character; the blood becoming impacted in these vessels, the circulation remains nearly stagnant, the blood is not subjected to the influence of the air in the lungs, & its color becomes dark or livid & the part is about to fall in a state of mortification. It is therefore a very important symptom, but it is necessary the discoloration should be permanent, the blush of shame or mental emotion is not indicative of inflammatory action. Generally speaking it must be accompanied by other symptoms of inflammation. Swelling or tumefaction varies in degree & in character depending upon the amount of the inflammatory action & the nature of the affected structures. It takes place soon after the commencement of the morbid action, & then gradually decreased with it. It does not come on suddenly & depart rapidly, but has a gradual rise & varies in extent. The immediate cause of this symptom is

a distended condition of the Capillary vessels of the affected part, accompanied by some or less effusion of Serum & Coagulating Lymph, sometimes, blood & pus. In some parts of the body it is owing to the infected condition of the vessels contained in the fibrous & Serous membranes, In other parts as in  & muscular & cellular tissue, the swelling is owing to the effusion of Serum & Coagulating Lymph. It may be regarded in one sense of the term as a favorable symptom as it gives the part an opportunity of getting itself especially when there is much Serum & Coagulating Lymph, where the part is relieved as much as it would be under the application of leeches or local detraction of blood. In other cases it is quite the reverse, where the inflammation is very great & where there is Sloughing, a portion of the part has perished & there is a large opening on the surface; or where caused by the pressure they make on the surrounding structures as in inflammation of the peritoneum which may lead to pressure of the bulb? of the urethra. In inflammation of the funes we occasionally have great swelling which produces excessive pain in the respiring function. In inflammation of the larynx there is occasionally effusion of Serum, leading to <sup>2</sup>Edema of the Glottis which is a swelling of cellular tissue & the individual will perish unless relieved by a surgical operation. The effect of inflammation is the augmenting of the temperature of the affected



part, as influenced in inflammation of the throat, Stomach & Similar affections  
<sup>existed</sup>  
owing to an increase of temperature in the affected part. In some inflam-  
mations the temperature is greater than that of the heart & aorta. During partur-  
ition it has been ascertained the thermometer will shew a temperature of 106°  
Fahrenheit. We do not know how this increase of temperature is formed. We  
can suppose it to be the friction exerted upon the blood vessels in the affected  
part, together with other causes. <sup>as</sup> (more rapid oxidation of the tissues)

**III** Another local Symptom of inflammation is pain which is a constant  
symptom. It varies in its ~~degree~~ as well as in its character. In its degree  
from the slightest tenderness to the most excruciating agony. It depends  
on the amount of inflammation, the nature of the affected tissue, &  
from the idiosyncrasy of the individual. In most instances we find pain  
beginning shortly after the morbid action, increasing with it in violence  
until it has reached its acme & then gradually decreasing with it, & it  
is gradual from its commencement to its termination. It varies in its  
character. In inflammation of cellular substance it is of a throbbing,  
pulsating character. In inflammation of the serous membrane it is of a  
sharp lacerating character; in inflammation of the lungs, liver & spleen  
it is of a dull heavy, aching, obtuse character; in inflammation of

the bones, or osseous tissue it is of a violent aching character, gnawing  
 sensations as if insects were eating into the part; in inflammation of the skin  
 it is of an itching character; in inflammation of the urethra & of the bladder  
 it is of a scalding or burning character. In ulcers accompanying Spina  
 it is of a darting or stabbing character. Pain is continued & not intermittent.  
 It is also at parts distant from the seat of inflammation & does not point  
 out the seat of the morbid action, as is the case in disease of the hip joint  
 the first symptom of which is pain in the trochanter on the inner side of the  
 patella for some distance up and down the limb. In inflammation of  
 the pelvis of the kidneys we find the sensation at the head of the penis;  
 in inflammation of the liver, a prominent symptom is pain in the  
 corresponding shoulder & arm. Now this is brought about we cannot  
 explain. The pain of inflammation is usually more prominent in the  
 covering of the organ affected than in the organ itself. This is the case  
 in pleurisy & inflammation of the lungs. Pain is greater at night than  
 in the day. Certain states of the atmosphere exert an influence  
 upon it. In cold weather pain is more severe than in dry. There  
 is a difference between the pain of inflammation & the pain of Spasm.  
 Pain in inflammation always aggravated by pressure, by position



it is accompanied by other symptoms. In pain produced by spasms, there is no symptom of inflammation. Pain is to be regarded as a formidable circumstance, for it will eventually exhaust the system. A sudden disappearance of pain is indicative of danger & in most cases produces mortification & the part dies & hazards the life of the patient.

This symptom is valuable in a practical point of view; if we had no pain the patient would have no notice of his danger & if the inflammation were very great mortification would continue & destroy him. Pain is produced by the state of inflammation the nerves are in, by pressure upon them & their undergoing some change. The pulsating pain is produced by the difficulty the blood experiences in passing through the vessels of the affected part. We do not know what pain is; all we know is, it is a peculiar mental change depending upon a sound state of the brain & nerves. Increased debility is one of the phenomena of inflammation. Disturbed Function manifests itself in various ways. In the brain by delirium, which if not checked in the early stage is always followed by convulsions. In inflammation of the ear there is a sense of ringing pain followed by delirium. In inflammation of the Larynx there is a change in the voice. In every inflammation of any organ

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there is a change in its functions. There is also an alteration in the sensations as in the inflammation of the stomach, of the liver etc.

In all inflammation, there is exaltation of the general sensibility.

**IV** A change of blood is a consequence of inflammation in which state the blood is more viscid than in the natural state; it coagulates more slowly, the crassamentum contracts more firmly & there is a greater amount of serum fluid. We find when the inflammation is well developed, there is an increase of fibrin & colorless globules in number, & the surface becomes more rough, & they are more adhesive in their properties.

These changes are the consequence of inflammatory process & are observable soon after its commencement, & there is also inflammation of the serum & fibro-serous membranes as in inflammation of the lungs, joint & rheumatic affections, they are also observable in the later months of utero-gestation. Another change is an increase in the contraction of the fibrin of the blood & a tendency to the separation of the red particles, leading to the formation of the buffy coat. How & where these changes are affected we do not know. They may originate in the blood vessels of the affected part, & are produced by the morbid action & the friction the blood experiences in its passage through the capillary vessels of



the affected part. The buffy coat is important. It exists only upon the upper surface of the crassamentum. It presents itself first in the form of a little film, which increases with the advancement of the coagulating process, until it forms a layer, sometimes  $\frac{1}{4}$  of an inch thick. Chemically it is composed of fibrin with albumen & water & some earthy salts; it is usually very firm & can be peeled off. It is formed of the vital repulsion between the fibrin & red particles of the blood, or it may be supposed to be owing to the inordinate contraction of the red particles compressing the fibrin. We are still in doubt as to the essential process of its formation. Sometimes it is very thin when the blood is said to be *Serpy*. Sometimes it has a cupped appearance, where the crassamentum presents a depressed appearance & indicates a high degree of inflammatory action. These appearances are occasionally deceptive, especially during pregnancy & in anemia & in inferior animals after having been subjected to a great deal of exercise. The formation is influenced by extraneous circumstances, by the manner in which the blood flows out of the part which you bleed. To examine it properly it should come out in an arched stream & flow in a globular reservoir. Inflammation extends itself in a variety of ways 1<sup>st</sup> by Continuity of Surface 2<sup>d</sup> By Contiguity of Surface 3<sup>d</sup> by the lymphatic vessels 4<sup>th</sup> by nervous influence or Sympathy 5<sup>th</sup> by the blood

1st. By continuity of Surface. In Gonorrhoea, where the individual gets a cold, there is a Suspension of the discharge; & the testicles begin to swell, the organ becomes tender, & enlarged, & indurated, & the morbid action of the urethra is suspended for a time. The Same is the case in inflammation of the fauces. 2nd. by Contiguity of Surface; as in inflammation of the Skin presenting itself in Erysipelas; the morbid action is first limited to the Skin; during its process it often extends deeply to the muscles & the cellular tissue which connects them together, Sometimes even to the periosteum & the osseous tissue. 3d It may extend along the course of the lymphatic vessels, as in punctured wounds of the fingers, hands &c as in the Case of wounds made during dissection where the inflammation is sometimes carried along these vessels to such an extent as to cause death. 4th It may be propagated through the agency of the nerves or Sympathy, in the case of Mumps <sup>glandular</sup> which consist of inflammation of the parotid gland the testicle often becomes involved; So in disease of the uterus & mammary gland; & attended with painful menstruation, we have a painful breast. In inflammation of the Stomach, as in cholera infantum, the brain often becomes affected. When there is a calculus in the urinary bladder, it brings disease also in the Uterus & the



Kidney & the blood becomes the agent in carrying inflammation in different parts of the body. The Causes of inflammation are predisposing and exciting. The predisposing or exciting Cause may be congenital by birth & Constitution. Therefore Some persons are predisposed to Scrophulous diseases, Some to Cancer, Some to inflammation of the different organs.

It may be acquired, in many different ways; from Excess of Study; from indulgence of appetite; age is a predisposing cause of disease, climate another; Severe inflammation another: fear, grief, passion, intemperance, Sexual indulgence, all predispose to inflammation in different parts of the body. Parturition predisposes to inflammation of the uterus, ovaries, & different parts of the body. The exciting Causes of inflammation act directly or indirectly & are very numerous: they act mechanically or chemically. Hot & cold application of liquids & different kinds of poisons act ~~mechanically~~ wounded fractures act mechanically. Other Causes act through the Constitution indirectly but we cannot explain them. The miasmatic influence may be taken up during respiration & carried into the lungs. In inflammation the blood vessels contract & the blood is swept along with great force & the globules are swept along in an irregular manner,

Impinge upon each other. Afterwards the vessels become expanded & dilate because the blood is crowded in immense quantities & increases the action of the heart; the blood becomes crowded to such an extent the white globular particles are intermixed with each other & many become adherent to each other & the sides of the vessels & the blood becomes stagnant, and ceases in some degree to circulate; the coats containing the blood become highly inflamed and at last give way so that an extravasation takes place. There is in inflammation an escape of Serum, coagulating lymph & afterwards blood & pus. The vessels leading to the inflamed part are always first crowded.

**V** The blood vessels at last become soft & allow some of their contents to escape in the surrounding tissue constituting ecchymosis. There is a dilated condition of the large trunks leading to the inflamed part. The part in inflammation labors under exalted action & in other cases there is debility. The inflammatory process has a tendency to give rise to what is called symptomatic inflammatory or sympathetic fever. Inflammation does not always occasion these fevers. Frequently it is preceded by a feeling of depression debility or exhaustion. This fever rarely intermits when once fully established, but frequently remits, especially in the morning,



being followed by an aggravation in the evening, or at night. It is caused by marked action & is therefore properly denominated inflammatory & Sympathetic. It is the reflection of the local action. We find all the organs more or less affected by this disease. In some inflammations the pulse is peculiar; as in the inflammation of the peritoneum, of the brain. The pulse often varies in the natural state from  $40^{\circ}$  to  $50^{\circ}$ . The appetite in symptomatic fever is usually deranged. Sometimes entirely suspended. In some cases the liver does not act naturally, the biliary secretion is changed in character the urine instead of being thin & watery, is thick & highly colored, secreted in small quantities & deposits if allowed to stand more or less minute of ammonia. All the effusions of the body are in a state of confusion whenever the inflammation is well developed. The secretions are deranged. The skin is hot & dry. The terminations of inflammation are numerous & important. We have delatrescence and resolution, 3<sup>d</sup> Effusion of Serum & deposition of coagulables lymph & formation of matter. 6<sup>th</sup> Softening 7<sup>th</sup> Gangrene or mortification as the result of the acute stages or process of inflammation. We have induration, ulceration, granulation, cicatrization &c, as terminations of the chronic form of inflammation. The most favorable termination is delatrescence, which may take place suddenly, spontaneously or artificially,

completely or incompletely. A foreign Substance lights upon the Cornea;  
 the heart & brain are made immediately sensible & there is a rush of blood  
 to the affected part. To wash this off there is a secretion of lachrymose fluid.  
 The Substance remains for half an hour; there is further in the part, increased  
 injections in the Capillary vessels; Arteries & veins are apparent which are not  
 perceptible in the natural state. There is disordered function of the part. Remove  
 this Substance & in a few hours this morbid action caused by the presence of  
 this Substance will totally disappear, either gradually or suddenly without  
 leaving any bad effects from the inflammation. Here the inflammation termin-  
 ates, & in the most favorable manner. It sometimes happens when it disappears  
 suddenly from one part of the body especially after having been well established,  
 it may fix itself almost in an instant on another & important organ, as in  
 the case of gout, rheumatism & other inflammations where the disease is  
 transferred. The termination by resolution is more gradual. The in-  
 flammation has been for sometime in progress, there may have been  
 effusion of Serum, Coagulating Lymph, pus; & Softening in the part,  
 disordered function &c you have all the local phenomena & gradually  
 the action is restored, either by the efforts of nature, or by medical or  
 Surgical interference. The circulation is restored & the natural functions



go on again. Effusion of Serum is another termination. It is simply a condition or result of the morbid action, for it continues in the great majority of cases, & is generally poured out in inflammation especially when well established.

Deposition of fibrin, lymph, or plastic matter, or animal glue. This is the result of a process of secretion & is the result of a vital action, as in inflammation of many internal organs in pneumonia &c. There may be another Condition; Suppuration, the deposition of pus or an abscess; the parts may be relieved in this way & the inflammation not terminate. It is only one of the events of the morbid action. The blood is deprived of its coloring matter. We have also Softening which is sometimes the result of the acute form & sometimes of the chronic form of disease. When there is Softening the affected parts are somewhat broken down in their structure, as in the case of the heart when it can be perforated with the finger. When this occurs there is a higher degree of morbid action than when there is simply an effusion of lymph or serum. When there is Softening there has been severe inflammation, violent in its character. If the part has been deprived of its vitality, it is evidence of the highest degree of morbid action we can have in the affected structure.

**W.** Treatment of inflammation. In every case of inflammation two important indications are presented. Let us remove, if possible, the

exciting cause & so, to reduce the inflammation, & establish resolution.

Whenever practicable we remove the exciting cause. This cannot always be done, as the Cause is not always apparent or accessible; but where it is so, as in structured haemia, always remove it. When not accessible we must not be too officious with interference, as in cases where balls are lodged in deep and important Structures, where you allow the foreign substance to remain, trusting it will not act offensively, & will ultimately be disposed of, meanwhile treating the case on antiphlogistical principles. The importance of removing the exciting cause is evident, as in the case of the beginning of <sup>Chancere</sup> ~~Chancere~~. The treatment of inflammation may be constitutional or local. (Constitutional treatment is by blood letting, purgatives, antimonial, diaphoretic, diuretic, anodynes, low diet, & an avoidance of all excitement bodily & mental. General bleeding is applicable only under certain circumstances, the peculiar condition of the part or the System. It is only when very severe, & there is a high local action, where the patient is plethoric, of a full habit with a full round pulse that you bleed. Then open a vein at the bend of the arm & draw blood freely, not only to make an impression on the part affected, but also on the System at large. The operation is palliative, diminishing the actual quantity of blood & changing its properties. So, it calms



the action of the heart & brain & diminishes the force of the circulation & <sup>by</sup> it promotes the action of other remedies, as emetics, purgatives diuretics and diaphoretics. This enables the system to change the condition of the blood, and restore it to its natural state. The operation should be performed in a certain manner to do most good. Place the patient in the semi-erect posture, sitting on a bed or chair, tie up the arm & make a large incision in the vein, that from 2 to 3 ounces may be furnished in the course of a minute, & then continue until there is an approach to Syncope, or the patient falls down in a swooning condition. The inspiration is much greater than when blood is taken gradually & the patient is in a recumbent posture. It is best not to heed to Complete Syncope. The patient will look pale & begin to yawn. If he stands he will be in a condition of partial unconsciousness, with face very pale, pulse almost imperceptible at the wrist, he will have tremors & sometimes Convulsions. In this case place him in the recumbent posture & give the heart opportunity to recover its strength & throw the blood in some degree upon the brain. It is sometimes necessary to depress the head & elevate the rest of the body, & it is frequently necessary to employ powerful Stimulants; apply Sinapisms along the spine & stimulating injections, & there will be a reaction & the proper functions are restored, & it goes on till the reaction amounts to

fever & the skin burning hot & dry as it was previous to the abstraction of  
 blood when the same course is to be pursued. There is another species of  
 reaction to which attention must be paid & that is the reaction supervening  
 upon the inordinate abstraction of blood produced by one or two copious bleedings,  
 or a number of small bleedings producing a drain upon the system; in  
 which case you must watch the patient carefully, for there is danger of  
 inflammation of the brain, lungs, pleura & other important organs, which  
 are peculiarly prone to congestion & inflammation. Here you must administer  
 anodynes  $\frac{1}{2}$  grain of Morphine, applied to the head, exclude light from the eyes,  
 repeat & officious nurses & trust to time when the patient will be saved. Inflammation  
 often engenders a tolerance of bleeding & thus assists our diagnosis. This is  
 usual in the use of other remedies. In inflammation of the lungs, immense  
 quantities of tartar emetic may be borne with impunity; in inflammation of  
 the lungs you can give enormous quantities of Calomel, & in other cases  
 salivation more than sufficient to destroy life in a healthy individual.  
 Sometimes the abstraction of  $\frac{1}{2}$  lb of blood will snuff the patient faint,  
 bleed him 12 or 15 hours after & he will bear many ounces without any  
 approach to syncope. Bleeding should not be practiced without due  
 deliberation. When required bleed early & freely, & cut short disease, &



Less important structures. Young children & old persons bear bleeding badly, comparatively speaking. Persons living in cities do not bear the abstraction of blood as well as those who reside in the country owing to the difference in the manner of living. The same is true with regard to the inmates of hospitals & asylums. You must be careful in bleeding persons laboring under severe injuries. All individuals must not be bled similarly, but only until an impression is made upon the heart & brain. In repetitions of bleeding you must be governed by circumstances. Generally one bleeding early in the case from a large incision will be found amply sufficient. Always remember, one good bleeding early, will do more good than 20 later in the case.

**VII** You should always bleed for effect & not for quantity. When the disease has made considerable progress, the patient will not bear bleedings as well as at the commencement. Nor will he bear it well when subject to disease, nor if an habitual drunkard, nor if he is of a nervous temperament. Fat people do not bear the abstraction of blood as well as muscular subjects. In infants & old persons loss of blood is badly borne. Purgatives are secondary only to blood letting in their beneficial effects upon the part & upon the system. These articles are employed to produce certain effects, one of which is to clear out the contents of the bowels; another, to excite the secretions of the mucous follicles which exist in the corner of the alimentary canal.

3<sup>d</sup> to excite the liver & pancreas which have direct communication with the alimentary Canal. 4<sup>th</sup> to produce a revulsive effect, or counter-irritation & they deplete the alimentary Canal, depriving the blood vessels of part of their contents especially <sup>of the</sup> ~~of the~~ & finally they promote the action of other remedies.

1<sup>st</sup> To affect the bowels. When there exists severe inflammation, with Symptomatic Sympathetic & inflammatory fever, the contents of the bowels become initiated & these remedies effect clearance of these contents which often become solid & irritate the mucous membrane, & through it the serous & vascular system, even when not so charged with fecal matter. We therefore give in almost every case of inflammation, especially when well developed a purgative, producing the abstraction of blood from the arm, if indicated by certain circumstances. 2<sup>nd</sup>. They stimulate the mucous follicles of the alimentary Canal.

The Alimentary Canal measures in the adult not less than from 12 to 14 feet & is from 2 1/2 to 3 inches in diameter on an average, on every square inch of which are numerous glands which secrete a mucous fluid which lines the mucous surface & protects it from contact with the fecal matter, & promotes the passage of the contents of the bowels. When there is inflammation there is a suppression of this discharge, the mucous membrane becomes dry & with purgatives we augment this secretion 3<sup>rd</sup> we stimulate the liver



pancreas, & salivary glands generally. In inflammation the liver is  
 deranged; there is either too much or too little bile, & the quality is changed  
 in properties. Purgatives restrain the action of the liver & modify its secretions  
 & <sup>by</sup> we establish a revulsive action, on the principle ~~that~~ that  
 two morbid actions cannot go on in the same body at the same time.  
 When there is inflammation of the brain or eye, for instance, by giving purgatives  
 you irritate the bowels & produce a morbid action & send the blood to the bowels,  
 & it is thus diverted from the affected organ. <sup>5thly</sup> They produce actual depletion  
 depriving the blood of its serum, & lastly, we promote the action of other remedies.  
 If a patient has peritonitis with an effusion in the cavity of the abdomen  
 amounting to 2 or 3 Gallons, diuretics will not act unless their administration  
 is preceded by the use of purgatives such as jalap, or jalap & scam of tartar, &  
 restrain the action of the absorbent vessels, & allow the diuretic to exert a bene-  
 ficial influence. To clear out the bowels, you give gentle Cathartics, a dose  
 of Castor oil, or Colocynthis, or rhubarb, or infusion of Senna. To excite the mucous  
 follicles you give something more active, & to stimulate the alimentary  
 canal give Saline cathartics, Epsom Salts, Citrate of Magnesia, Glauber's  
 Salts. This is an eligible mode of bleeding a patient. To produce an impression  
 upon the liver combine with the articles a certain quantity of Calomel, or blue

mass a grey powder; which articles act specifically upon the liver & open  
 the biliary secretions & upon the skin, give the patient a calomel pill  
 to produce a powerful revulsive effect as in inflammation of the brain  
 or arachnitis, or such affections give drastic purgatives, Colocynthis,  
 Scammony & Gamboge & aloes &c. Purgatives are invaluable in all inflam-  
 mations attacking that part of the body above the Diaphragm. In inflam-  
 mation of the Stomach, bowels, bladder, uterus & such parts of the body, purgatives  
 must be given with great care. The best purgative to administer in inflam-  
 mation of the Stomach is calomel & opium the latter usually combined with  
 the purgative. In inflammation of the bowels especially under certain circumstances,  
 & in inflammation of the peritonaeum you make use of large quantities of *Antidotes*,  
 & in inflammation of the bladder & uterus because they lie in immediate proximity  
 of the Rectum & are liable to be disturbed by the action of the Remedy. But is an  
 important item in the treatment of inflammation. Calomel & Blue Mass are  
 given generally when there is much derangement of the alimentary Canal, &  
 when the patient is bilious & hinders the secretions. If there is slight derange-  
 ment; you give a more aperient remedy; a little Castor oil, a rhubarb, a citrate  
 of Magnesia, or Colocynthis, or Calcin'd Magnesia. Soda acts upon the liver nearly  
 as well as Mercury. Give it either alone or with Sulphate of <sup>Magnesia</sup> ~~soda~~, with some



Carminative put in a pint of boiling water & let it stand. Give 3 or 4 times a  
 three hours according to circumstances. Another article is the Compound extract  
 of Colocynthis, formed of Colocynthis Scammonea & Soap which acts gently and  
 softens the liver, you may combine a little Blue Mass, or Calomel, or some opium-  
 pumana according to circumstances. If the patient's bowels are distended with gas, give  
 half an ounce of Castor Oil with one or two drachms of Spirits of turpentine, which  
 produces a collapse of the bowels. Sometimes the purgative acts too slowly, then  
 administer an enema, clyster or injection as it is called. the important requisite  
 is a quantity sufficient to distend the lower bowel: if an adult a pint or quart of  
 fluid, impregnated with table Salt, brown Mustard, Castor oil, Sulphate of Magnesia,  
 Sulphate of Soda, infusion of Senna, or Spirits of turpentine to stimulate it; & throw it up  
 as far as possible with a Syringe. The best article for an enema is a common flower  
 Syringe holding about a pint. Mercury produces an effect on inflammation,  
 it moderates the action of the heart, changes the constitution of the blood, removes the  
 Secreted fluid & prevents deposits of Serum & Congulating Lymph, & stimulates the  
 absorbent vessels. It may be used with advantage with various organs & structures of the  
 body; the fibro serous Membranes, as the serous Membranes of the Lungs, heart, liver  
 Spleen brain &c; in inflammation of the lungs, lungs, joints, iris, testicle, &c.  
 In the mucous membrane of the alimentary Canal, Stomach, bowels, & other parts of

the body, the beneficial effects are not so apparent. When employed Mercury should be given early in the disease, & with a liberal hand; Combine the mercury with an amygdal to prevent its running off to the bowels. The best forms of Rubrication are Calomel, Blue Mass, & the grey powder. Its effects must be watched, it must not be continued too long. If the gums become tender & tumid, & there is bluish line along the teeth which project slightly from their sockets, & there is rawness & a copper taste in the mouth, & increase of Saliva & such Symptoms, discontinue the article. or if the disease still requires its administration, give it in smaller quantities & less frequently, according to the circumstances of the Case.

#### VIII.

Mercury should be administered freely, but not till after depletion has been performed. A good dose is from two to three grains of Calomel, given every 3, 5, 6, or 8 hours according to the exigency of the case. When an important organ is affected we generally give larger doses. Mercury when given for a length of time will produce griping; therefore give every 48 hours, Castor oil, magnesia, or Epsom Salts to clear out the bowels. It is occasionally slow in producing its effects when given internally; then you can promote the action by rubbing upon the body the black or blue ointment; to make a rapid impression  $\frac{1}{2}$  drachm or a drachm of the ointment every two or three days, occasionally changing the place of application. We select those parts of



the skin which are most sensitive, as the inner Surface of the thigh, groin, arm & axilla; tender it as efficacious as possible the friction should be continued for some time before a fire. To prevent the person making the application from becoming salivated, he should wear a glove, made of Kid, bladder, or buckskin. A warm bath Employed once or twice a day will promote the action of mercury thus applied. You must be exceedingly Cautious in the use of mercurials, or the secret effects may be produced by its improper use. Purgeants diminish the action of the heart & the brain, unblocking all the secretions, & prove eminently Serviceable as antiphlogistic agents. Give  $\frac{1}{2}$ ,  $\frac{1}{4}$ , or  $\frac{1}{8}$  grain of tartar Emetic & you relax the system, & increase the secretion of mucus in all parts of the body: These articles Can produce actual Emesis which should not be induced except under certain circumstances. They are very advantageous when properly administered. The best are tartar of Antimony, potash, & ipecacuanha, which may be variously Combined to produce certain results. Tartar Emetic may be given in doses from  $\frac{1}{4}$  to  $\frac{1}{8}$  grain, repeated every three or four hours, according to the effects you wish to produce. This produces debility of the heart and nervous system. If the inflammation is very violent, you can give a larger quantity even as much as two grains every two or three hours; for the inflammation produces a tolerance of these medicines. If this acts incorrectly you may substitute

iprecachuanas. Tartar emetic is more powerful than any other antiphlogistic agent, it may be given in solution & you can combine with it a certain quantity of laudanum which will tranquillise the system. Diaphoretics are an important class of remedies & tend to produce sweat. They are best to be commenced with; the system must be prepared for their use by the lancet, by purgatives, & nauseants. The most accurate diaphoretics we have are nauseants or depressants.

Tartar Emetic stands at the head of the list; combine with it a certain quantity of laudanum or morphine if necessary; iprecachuanas may be used in the same way for the same purpose. If the skin is hot & dry make use of sponging with tepid, cool, or cold water as is most agreeable to the patient. Sometimes you can use the tepid warm or steam bath, but the difficulty is you cannot always get the patient in the tub. Diuretics are another class of remedies.

The renal secretion is modified in the course of the inflammation, & if not arrested is altered in its properties, diminished in quantity & quality & contains more animal & earthy matter. Diuretics will modify this secretion but like the other remedies depletion must be permitted. Warm diuretics should not be used to any extent. The principal articles used are nitrate of potash, sweet spirits of nitre, bitartrate of potash & similar articles. Alkaline preparations, balsam Copaiba, Cubbs, colchicum, & digitalis, parsley root tea, make an



impression upon the watery portion of the blood, and the urine will become clear and thin; to act specifically give balsam Copaiba a cube, either alone or in Combination Colchicum is applicable in affections of the articulations, in gout & inflammation: it acts on the Venal Secretions, & relaxes the vessels of the mucous membrane of the alimentary Canal. Another important class of remedies are anodynes which relieve pain & induce sleep. In Cases of whitlow & felon, on the finger, the best anodyne is to make a free & early incision, but where this has been neglected Anodynes must be given to induce sleep. They should not be given Carelessly, nor too early unless the Symptoms require it, but when indicated give full doses, & if necessary Combine another article. Some persons Cannot take opium in any form owing to a peculiarity in their Constitution. When this is the Case you Can apply a little Nitrate to the Skin to remove the cuticle; wipe off the Serum & apply Morphine to the Surface & over this a plaster & the effects will be produced in a short time. When an anodyne is administered by the rectum the same result is often induced as when administered by the mouth. When the Anodyne Cannot be borne in any form, whether administered by the Mouth rectum or Skin, you give belladonna, or extract of henbane or some similar article. hyoscyamus - Lactucarium -

IX When indicated anodynes should be given in large doses and at long intervals. We usually administer a larger quantity of opium or its equivalent

by the rectum than we do by the mouth, but the quantity should not be much greater. In administering one drachm of opium by the rectum in an injection, when we would not give more than  $\frac{1}{2}$  drachm by the mouth. Previous to this you should clear out the rectum & make it empty as possible, & when this precaution is used, the quantity need not be much larger than when administered by the mouth, & the effects will be the same as produced by a larger quantity when the rectum is not emptied. The Antiphlogistic regimen Comprises 1<sup>st</sup> low diet, 2<sup>nd</sup> rest of mind & body 3<sup>rd</sup> proper ventilation of the patient's apartment 4<sup>th</sup> (brandishes 5<sup>th</sup> & lastly, proper attention to the patient's apartment in other respects. The diet should always be slight as possible, & be as slightly nutritive matter as may be. A patient labouring under high inflammation, usually loathes food & his appetite is gone & this is very favorable, & therefore there is little difficulty in this portion of the regimen. Sometimes the reverse is the case, when the patient will not be restrained in diet, & then the diet should be slight as possible, as the usual diet will feed the inflammation. Give gum, arrow root, Sago & tapioca & some animal broths. The patient should not eat meat or ordinary vegetables, nor coffee & tea, especially when strong, & not large quantities of gum, arrow root, Sago, or tapioca; the object in view is to stave the patient. Give some demulcent fluid as both sweet & astringent. Do not



give solid articles as a rule during the morbid action, nor during its decline, lest you increase the morbid action. When the patient is of a nervous or excitable temperament, he cannot bear this starvation; this is especially after the morbid action is in some degree subdued, when you must use animal broths & sometimes small quantities of animal food, but very carefully lest extending the action of the heart you produce a bad effect upon the affected system.

There will be a great deal of thirst. The best drinks are cooling drinks slightly acidulated to render it more palatable to the mouth & stomach. Give cold ice water or ice itself if attainable; this makes a favorable impression on the inflammatory action & through the system on the affected part. Slightly acidulate the drinks with vinegar or any acid, or if nothing else can be procured slice some apples, & put them in the water. These drinks should be used in small quantity & frequently repeated so as not to oppress the stomach & excite nausea & vomiting. Rest of mind & of body is of great importance. If a man has inflammation of any important structure of the body, exercise his body by motion & you will excite the action of the heart, & in this way induce the organ to throw more blood in the inflamed structure. The mind should be tranquillised to as great an extent as possible. The atmosphere of the patient's apartment should be as pure and uncontaminated as possible. If the air is contaminated, it will exert an

influence not only upon the lungs, but on every portion of the body. Regulate the temperature by means of a thermometer & let it be from  $65^{\circ}$  to  $68^{\circ}$  on an average during the 24 hours, & occasionally open the window or door, & allow fresh air to come in. Cleanliness is a matter of the utmost importance. In most cases washing is too much neglected: the patient's body should be kept clean, the bed clothes & the room also, for washing the body relaxes the affected parts.

The patient's clothes & the bed clothes should be frequently changed, as well as the utensils used for evacuations; & see there are no officious individuals near the patient so that tranquility of mind can be induced. The proper arrangement of the furniture of the patient's apartment should receive careful attention & see that everything in the chamber has a tendency to his satisfaction.

The local treatment of inflammation comprises 1<sup>st</sup> rest & proper position of the affected part. 2<sup>nd</sup>, topical abstraction of blood, 3<sup>rd</sup> Cold & warm applications. 4<sup>th</sup> Use of nitrate of Silver 5<sup>th</sup> Application of Iodine 6<sup>th</sup> various forms of counter irritants. Rest of the affected part is a matter of paramount importance in all cases of inflammation, even when comparatively slight.

The surgeon can almost control this positively, by confining the patient & if necessary keeping the parts at rest by means of proper apparatus. The part should be placed in an elevated position. A man



has inflammation of the nerve of a tooth & is comparatively comfortable as long as he is in the erect or semi-erect posture; as soon as he lies down there is aggravation of the morbid action, because when the body is recumbent, the heart cannot throw the blood with the same force to the affected part as when the subject is in the erect posture. When there is a case of whitlow, & the finger hangs at the side the part at once throbs with the contraction of the left ventricle of the heart for the blood passes in larger quantities & with more force than when the finger is in an elevated position. Therefore, in such cases, it is put in a sling & elevated as much as possible to prevent the heart from throwing the blood with as much facility, as before, into the affected part. If there is inflammation in a joint, the best position is the semi-flexed. When a part is in a state of inflammation, it contains more blood than in the normal state, & this leads to the abstraction of blood from the affected part. This may be done by scarification, by puncture, by the application of leeches, & by the use of cups. Scarification is an efficient mode in certain cases. In all inflammations, with but few exceptions, it may be used with great advantage, especially during the violence of the morbid action we can excite the flow of blood by applications of warm water pressed from a sponge. This is of great advantage in inflammation of the fauces, tonsils, tongue, uvula, lips, lower extremities, & genital organs especially of the

female. In inflammation of the skin in erysipelas, in boils, carbuncles, & when there is much tension in the surface & much effusion of Serum & Coagulating Lymph, & sometimes of pus & blood, you make free incisions instead of Scarifications, dividing the skin, subcutaneous cellular substance & even the fascia, for you then give vent to effused fluids, which if allowed to remain will produce mischief, & eventually mortification. Punctures may be made use of instead of incisions, as in Erysipelas, making a great number over the surface, & reduce tension. In inflammation of the tonsils great advantage accrues from punctures when the parts are violently inflamed. In performing these operations you must not interfere with the nerves & blood vessels, nor open important joints, & the flow of blood should be assisted by warm water. Another mode of abstracting blood is by means of leeches. It takes 6 American leeches to furnish one ounce of blood; one or two, say two Swiss leeches take an ounce of blood after bleeding; two or three German leeches give an ounce of blood. Before being applied you should be careful to perform ablutions of the surface, washing it with soap & water if necessary, & sponging it with warm water until the surface is perfectly clean & smart, & if there is hair on the part, it should be shaved off. If the animal has been distended for some time it will take blood with great facility, but if well fed, it will be slow to do this. It is best



generally to apply a little blood to the surface from which the blood is desired to be taken. Sweet cream or milk sweetened with loaf sugar will stimulate them to take hold, or immerse the leech in beer diluted with water before taking hold.

Confine the leech in a small tumbler inverted & place it in contact with the surface where the leech is to be applied. You must be careful not to group them too much together, & not upon the center because if applied there they produce more inflammation adding to the morbid action. The number to be applied varies with the circumstances of the case, & the indication you wish to fulfil by their use. If the subject is a child make use sometimes of one leech & that an American, if a year or two old, use 2 or 3 leeches; if the patient is in the vigor of life & plethoric you use 20, 30 & even 50 according to circumstances. Sometimes 20 or 25 early in the day & then 20 or 25 more a few hours afterwards.

The treatment should not begin with leeches if possible as a general proposition. They should not be applied where there is a good deal of loose cellular substance, as at the eye, Scrotum, vulva, & prostate, for they produce sometimes tumefaction which may be injurious to the parts. Do not apply them along the course of important blood vessels for they sometimes puncture them. They should not be used in cases of specific inflammation as in <sup>Chancres</sup> ~~Scrophulous~~, for example where the leech bite may become inoculated. You allow

them to hang on until they drop off voluntarily. The leech makes a triangular wound & if it is torn off from the surface its fangs may be left behind & produce irritation. If it is necessary to take them off take a pin & pass it gently between the mouth of the animal & the part, or sprinkle some vinegar or salt water on the animal's tail & it will drop off immediately. After they have dropped off you encourage the flow of blood for several hours according to circumstances & carefully watch the effect of local detraction of blood & make use of cloths wrung out of warm water & place it on the affected surface previously sponged & place over this a piece of oil silk, or a dry cloth occasionally changing the cloth every 15 minutes, & apply an emollient poultice, but the former is better. If the patient has lost blood enough wipe the surface dry & sprinkle upon it a little flour, or the best thing is to expose the surface to the cool air. It sometimes happens that the bleeding goes on to an inordinate extent. The best plan to stop it is to sponge the parts carefully & sprinkle on it a little powdered alum or make use of a little compress dipped in a strong solution of alum & place it in contact with the body, & another compress over it, & still another compress to confine these two, & confine it with some strips of adhesive plaster. If this does not answer



the purpose, use Compression with the thumb & finger for 15 or 20 minutes. If this will not answer take a piece of nitrate of Silver, cut it to a point, & insert it into the triangular wound, hermetically sealing the vessels; if this will not answer, the purpose make use of the twisted Suture; take the smallest Cambric needle you can find in the house & transfix the edges by means of it; wrap around it a thread & perform the same Suture the Surgeon uses in performing the operation for hæmip & the bleeding must cease.

[X] Leeches should not be applied to exposed parts of the body, as their wounds leave scars, which, especially in a female, may be an additional source of irritation. There is an artificial leech in a sort of air pump in which is concealed a lancet which is secured to a pump & is then applied to the skin so as to elevate it & the subcutaneous cellular substance & by removing the air the parts will be drawn to the scarificator. We have sometimes to take blood by leeches from the orifices of the body as the uterus, vagina, rectum, tonsils, tongue, inside of the cheek, or the inside of the nose. When this becomes necessary, we make use of a rubber contrivance to prevent the leech from dropping off. In the case of the uterus we make use of the Speculum, also in cases of the application of leeches to the vagina & anus. In the latter case the Speculum has an opening on

the side. In the case of their application to the inside of the cheek, or nose, or tonsils, we must make use of a small glass tube. Another mode of abstracting blood is by means of cupping which may be performed in a variety of ways. When there is no proper apparatus, it may be performed ~~temporarily~~ temporarily; by taking a small tumbler or wine glass, & exhaust the air by lighting in it a piece of cotton saturated with ether or alcohol, place it immediately over the part & it will raise the surface, remove the cup & scarify the part with a small sharp instrument as a scalpel or lancet. There are many contrivances for this operation. We never apply the cupping glass over bony prominences; those parts supplied with cellular substance are most eligible. After the scarification, reapply the cup & exhaust the air as before, & the blood will continue to issue, & will flow until the orifices have been obstructed by its coagulation; When there is no further flow take off the cup by insinuating a needle between its upper edge & the skin & collect the blood with a sponge. We can aid the instrument by squeezing the orifices, & reapplying the cup & continue until the flow ceases & is in a great measure obstructed. If there has not enough blood flowed reapply the Scarificator in an opposite direction, but this is not often necessary. The number of cups varies according to circumstances & the



amount of blood you wish to draw. Sometimes you apply one cup, sometimes two or three, & occasionally even as high as 15. Each cup generally furnishes from 3 to 5 ounces of blood. After drawing the blood, sponge the parts, & place in contact with the incisions, a piece of lint with a little oil of Sweet, or simple creote, & this will be sufficient. Cupping cannot be superseded by leeches. Leeching has its advantages, & cupping also has its advantages. Cups are not applicable in all cases. In case of the inflammation of the alimentary canal the patient will not be much benefited by cupping, & in such cases leeches are preferable, for the suffering will be slight & there will be no mechanical shock. Certain parts of the body cannot be cupped under any circumstances. You may apply the cups directly to the inflamed surface, but it is better to apply them in its immediate vicinity. To relieve inflammation of the eyes, we apply them to the temple, neck, or a little way down the spine. To relieve inflammation of the pleura or lungs we cup as near the morbid spot or the seat of morbid action as possible. We occasionally employ dry cupping generally for the chronic forms of inflammation, simply exhausting the air & allowing the cup to remain for  $\frac{1}{2}$  or  $\frac{3}{4}$  of an hour, which will cause a determination of blood to the part, & probably vesication, then you blister the part & in this way produce a powerful revulsive effect. This may be done

in chronic affections of the head & Spinal Chord, & in the articulations, & produces a beneficial effect in relieving inflammation. There are

other antiphlogistic local remedies, as the application of cold & warm.

Cold applications seem to afford relief by lowering the action of the part, & the temperature of the part which is greatly augmented, & by leading to contraction of the capillary vessels of the surrounding structures, & by condensing the solids & rendering them unfit to receive excretations.

Warm applications seem to act in an opposite manner, & promote effusion.

The propriety of these applications varies according to the idiosyncrasies of the individual & the feelings of the part & sensitiveness of the patient. Cold applications are better adapted to external than to internal inflammations of the body. If after depletion the cold application is satisfactory to the part & the system, you continue it; & if it proves disagreeable, you substitute warm or hot applications. Water in any form is a very valuable agent. When you wish to apply cold nothing is better than cold water, & its efficacy may be increased occasionally by ice. To employ it take a large napkin arranged in several folds & wrung out of cold water, & apply it to the affected surface; & over the surface put a bladder containing a small quantity of pounded or scraped ice made in a seat of flat surface which



will maintain the temperature at the same point; or a stream of water may be  
 conducted by folded bandages to the affected part, by immersing one end in a  
 basin of water & allowing the other extremity to remain on the surface of the  
 cloth; or you may have a basin or bucket attached to the bedstead, & by means  
 of tubes conduct the water to the cloth covering the affected surface; when the  
 affected limb must lie in a sort of trough so as to allow the water to run  
 off into some receptacle at the foot of the bed as fast as it is conducted from  
 the reservoir down upon the affected surface. Sometimes we mediate the water,  
 make it astringent by acetate of lead or alum; to make it somewhat anodyne, we  
 use certain quantities of opium, laudanum, or morphine. We can mediate it  
 in any manner. If you can procure no ice, take miniate of ammonia, or alcohol,  
 & pyroligneous acid, one ounce of each to four ounces of water which makes a powerful  
 refrigerant lotion. It is very important to continue the temperature at the same  
 point. do not allow the inflamed part to be covered by the bed clothes, & let it be  
 exposed slightly to the influence of the atmosphere. When the inflammation does well  
 under this treatment continue it. If there is a tendency to suppuration characteristic  
 of increase of excitement discontinue the application, or if you find it has a tendency  
 to propel the inflammation to some internal organ, discontinue the application, & sub-  
 stitute warmth & moisture, & so try to invite the inflammation back again.

If warm applications are preferred, the best manner of applying them is by means of a piece of flannel large enough to cover the surrounding structures as well as the inflamed part, dip it in the fluid & lay it on, but do not oppress the part by the weight of the application. Take a piece of old flannel about 18 inches long & sew the ends together, & wring it out of hot water; then apply it to the part taking care not to scald the inflamed surface. To enable it to maintain its temperature cover it with a large piece of oil silk very smoothly & tightly. As the cloth becomes dry you wring it out again, but not the same cloth; you should always have another cloth prepared & ready so as not to expose the part longer than absolutely necessary, & keep the part under cover. Occasionally the part is benefited by the application of steam which may be applied by means of a contrivance consisting in a vessel or boiler with a lamp under it, having at the top a wooden tube about 12 inches in diameter & 3 feet long & kept open by means of hooks; the effectual extremity is placed under the cover of the patient, & the steam exerts itself directly upon the part. These applications may be medicated in the same manner as the cold. These applications must not be kept on for too long a time as they have a relaxing effect. If there is too much debility discontinue the applications & substitute something



Else. Whenever there is a change from cold to warm or conversely this change  
 must be gradual for if sudden, there may be mischievous reaction. You may  
 use poultices made of linseed, Slippery elm, or crumbs of bread. To make a good  
 ground flaxseed poultice, get good material & take a certain quantity sufficiently  
 large, after being spread out, to cover the surface; previously to putting it into the  
 vessel, pour some hot water in the vessel & scald it, put the material into the  
 vessel & then add gradually boiling water until you get the flaxseed of sufficient  
 consistence, so thick that if you throw it against the ceiling it will stick there;  
 the boiling water extracts the oil, & the poultice is rendered more efficient than if  
 prepared with hot or warm water. Take this mass & spread it on a cloth of about  
 two folds thick, & spread it out with a spoon that it will be uniformly about the  
 thickness of the little finger, & before applying it cover up the surface with a piece of  
 gauze, linnen, or mosquito netting which prevents it from sticking to the surface.  
 It is then applied to the inflamed surface & allowed to remain for 4 or 6 hours.  
 If the weather is warm it may be changed very frequently otherwise decomposition  
 may take place. If there is little or no discharge change it 3 or 4 times a day, &  
 before you take off the old poultice have a new one ready. A Slippery elm  
 poultice is prepared in the same manner. With crumbs of bread you proceed  
 likewise, but do not mix with it any milk. A poultice must not oppress

by its weight.

[XI] The water dressing is a more eligible means of remedy in inflammation than poultices. Occasionally the practitioner wishes to moderate his poultices & thus make more direct impressions on the nervous part. To perform this after the poultice has been spread out, Sprinkle the Surface with powdered opium, or Morphine, or Laudanum & use the articles cautiously especially where there is an abrasion on the Surface, which may make them as pernicious as when administered by the mouth or rectum. The practitioner may wish to make his poultice astringent, he can employ Gaulther's extract; to make it stimulating, especially if the part be in a state of ulceration or gangrene, form an admixture of Spirits of Camphor, or nitric acid, or Sulphuric acid, or Iodine Acid, or he may use red wine. To make it antiseptic as when the part emits a good deal of faeces you may employ the fermenting or yeast poultice consisting of a little flour with yeast, stirred together & placed under a heat when they ferment. Take a certain quantity of yeast & after spreading out the poultice put a certain quantity on the Surface say a half tablespoonful placing the yeast in immediate Contact with the affected Surface. When there is much fever you can Sprinkle



the Surface of the pustule as well as the dressing of the part with liquid carbonate of Soda or lime, To render it refrigerant make use of acetate of Lead, or Goulard's extract, or a mixture of one ounce of pyroligneous acid & alcohol to Ounces of water; or use mixture of ammonia or Sal ammoniac in combination with Nitrate of potash. The Nitrate of Silver & tincture of Iodine are celebrated as local applications in case of inflammation. Nitrate of Silver may be applied in different forms. In inflammation of the eye it may be applied in solution ranging in the manner; or may be applied in the form of injection as in Gonorrhoea especially in the male; or in solution, to the throat & tonsils; or in substance in the form of a stick inserted in a quill or Silver tube & applied directly to the Surface. This is a powerful Antiphlogistic employed in this way diminishing the vascular action & changing the functions of the part. In the treatment of Erysipelas inflammation this is frequently employed to circumscribe the morbid action. Cleanse the Surface around the inflammation with Soap & water, then lightly sponge it with Cold water. Apply the Nitrate of Silver holding it in close contact with the Surface. If the inflammation is in the abdomen You draw it in a ring about the abdomen ~~about~~ about Annular

about the inflamed part. In other Cases you Smear it over the whole affected Surface either in Substance or in Solution.

The tincture of Iodine may be used for the same purpose & sometimes more advantageously. It should be diluted especially adapted to the tolerance of the part, as in its native strength, it will be a source of immense suffering especially if the skin be delicate or it is applied to a large Surface. Employ equal parts of Iodine & Alcohol. Apply it by means of a camel hair brush, or a soft sponge or a linen drop. Dip it in the solution, then pass it over the Surface painting it until it is of a dark chestnut complexion, repeating it once in 8 or 12 hours, or not so frequently or more so, according to circumstances. It is well to extend the application beyond the affected Surface to circumscribe the morbid action. This is well calculated for external inflammation & may be used for inflammation of the mucous outlets. When used it must be applied carefully & lightly. These articles change in the 1st place the Capillary action of the affected part preventing the throwing out of Serum & coagulating lymph & Endly, they produce a powerful Escharific effect & stimulate the absorbent vessels of the part. Compression is occasionally



resorted to with advantage by means of a bandage, or adhesive Strips. In the  
 treatment of fractures, dislocations, or wound produced by the Surgeon,  
 the bandage should not be neglected. In Empyematous<sup>ous</sup> affections of the  
 arm nothing is better than the application of iodine surrounded by a  
 bandage. In inflammation of the testicle use adhesive Strips  
 after the inflammatory power has been modified & after proper  
 depletion. Have the Scrotum draw away the affected testicle  
 from the other, & apply a bandage consisting of an adhesive Strip  
 Commencing the application near the Spermatic Cord & draw it  
 around as if you wished to strangle the testicle & continue until  
 you get to the lower extremity, & apply a half vertical turn & in 6,  
 12 or 24 hours this Slip will seem ready to fall off from the diminution  
 of the Size of the testicle. This is better to be used in the chronic than  
 in acute forms of inflammation. Finally the Surgeon often  
 derives great advantage from Counter irritants, & establishes a  
 morbid action in a part more or less distant from that in which the  
 morbid action is going on. We make use of Setons, cæces,  
 Tartar Emetic ointment & Croton oil, in the nape of the neck or  
 between the shoulders, or in one or both arms, to create a new

action which, once established, shall counteract the morbid action.

Nature Sometimes establishes a Counter irritation, as in pulmonary consumption there is ulceration going on in the action from a fistula in the anus which discharges pus & forms a connection between the bowel & the skin. As long as this discharge is in existence the pulmonary organs will not be so likely to be oppressed. The same is the case with ulcers on the lower extremities in persons of depraved character, & drives the disease away from some important organs. Counter irritants may be established in many different modes. If the object is to make a sudden & powerful impression near the affected part make use of transient irritation by the application of a Sinapiem, Say, ground mustard mixed with water or vinegar & applied to the neighborhood of the affected part (This is very good in metastatic gout when you cure not only the toe, but you apply a Sinapiem over the stomach, chest, or nape of the neck as the case may be. Occasionally you apply hot water as in case of croup where there is violent inflammation of the larynx & trachea & there is threatening of a false membrane, where you employ the antiphlogistic treatment carried on vigorously. Sometimes you use a hot iron & apply it over the affected surface for the



purpose of vesicating the skin. To make a more permanent impression you employ blistering ointments, issues, setons & such things. In the application of blisters you must use certain precautions to save great mischief. Blisters are applied after proper depletion when the inflammatory action is somewhat modified. You must not allow the abstraction of Cantharides the active principles flies & to do this several rules must be observed

- 1<sup>st</sup> the blister should be properly spread. 2<sup>d</sup> It should be properly applied & not continued too long. 3<sup>d</sup> The patient should be placed under the influence of anodynes, & should take large quantities of gum arabic, slippery elm water to dilute the urine & make it less acrid. The blister should be applied, having previously been sprinkled with spirits of Camphor or certain quantities of morphia. It should be 6 inches square & from 1 to 3 grains of morphia for an adult & then take care to irritate the skin slightly by vinegar applied warm, & then apply the blister to the surface, fasten it very carefully & bind it very carefully. the edges should be provided with adhesive strips; apply over this a compress, & secure it by a bandage. Do not allow it to lay on too long. If there is <sup>any</sup> strangury, remedy it by demulcent drinks having opium in solution & administer an anodyne, a drachm of Laudanum, or again a

1/2 grains of morphine by the mouth, or, still better, by the rectum.

After the blister has drawn remove every portion but not by scraping.

If there are any vesicles open them carefully with a needle or pin but do not make a large opening, to allow the Serum to drain off. Apply Cloth wrung out of warm water covered with oil silk & a flannel, or bread & water poultice which will foment the part, & induce the vessels to pour out the Serum & the proper result will follow. You may apply the blister to the affected surface if external & if it is internal, as near as possible to the affected surface. If you wish a discharge of pus you can take off in 24 hours all the scab skin & apply some ointment. Sometimes a blister is the source of great irritation, Suppuration takes place, the discharge is after a day or two restored, the part becomes very sensitive. The best application now is painting this surface with white Lead Compound, but do not mix any Spirits of turpentine with it. Don't Sweet oil & Linseed oil & make it as thick as cream & apply it thickly over the affected surface. In children & persons of more sensitive Constitutions you must be careful in applying blisters, & if applied should not remain on more than a few hours at the utmost.



Setons are often applied but I am averse to this kind of treatment, yet it is a species of Counter irritation very highly spoken of, & must therefore be discussed.

By a seton is meant a subcutaneous wound retaining a foreign substance, as a chain of silk, a linen tape, a best of all a gum elastic tape. To introduce this substance you have a needle called the seton needle must be sharpened at one extremity, & at the other armed with an eye for carrying the foreign substance. Pick up a part of the skin & then apply the point of the needle to the part raised up, transfix it & depositing the substance remove the needle & allow the tape to remain. The orifice should be an inch and a half to two inches broad according to circumstances. Do not allow it to run in important joints or blood vessels & do not injure any important nerves. Tie the extremities of the foreign substance together & soon after dress the part with warm water dressings or an emollient poultice, until the necessity for the continuance of the seton ceases. If the discharge is disagreeable make use of some chlorinate. If the tape becomes offensive substitute another piece. If the discharge is not enough stimulate that portion of the tape to be drawn into the wound with a little irritating ointment, acid ointment or Savine ointment. Occasionally fungous granules shoot up. Clip these off with a pair of scissors &

Cauterizing them once or twice with Nitrate of Silver. Another mode of Counter irritation is by making an issue which may be done in several ways. The most simple method is by making an incision in the part through the skin into the cellular substance, not extending in the muscles, for  $\frac{1}{2}$  inch in length & in the bottom introduce an old bean or pea, or pebble; something hard which will not imbed in moisture.

Confine this with several strips of adhesive plaster, & over it a compress & over that a roller. The discharge may be increased by the application of stimulating ointment.

Another mode of Counter irritation is in the use of Vesicant paste. Equal parts of quick lime & Caustic potash put in a vial closely corked. To use it, pour out a certain quantity & mix it with Alcohol. If the issue is to be the size of a dollar apply the paste about 2 inches in <sup>surface</sup> ~~thickness~~ & put it in contact with the skin & maintain it there for about 10 or 15 minutes. Then the skin has been converted into an eschar; take off the substance, wash the part with vinegar & water & apply warm water dressings or emollient poultices. When the eschar is detached a discharge may be promoted by the regular dressings assisted by some irritating ointment. This is one of the best modes of performing a Counter irritation.



Another mode is in the actual Cautey, the application of the hot iron  
 To produce a transient effect heat it to a red heat & hold it for seconds  
 from the surface & bring it nearer as the heat subsides in the instrument.  
 This is a very powerful means for a sudden impression. To destroy the  
 skin in the form of lines heat an instrument somewhat hatchet shaped  
 to a white heat in a chafing dish filled with Charcoal & assisted by a  
 pair of bellows & pass it over the surface & then in an opposite direction  
 & apply Emollient dressings & the discharge will be considerable. A  
 better method is by at once establishing an eschar. Use a round instrument  
 about the size of a quarter dollar, heat it to a white heat & apply it  
 firmly by pressure to the surface you wish to Cauteyze, until the  
 skin is destroyed as well as the subcutaneous surface. Having done  
 this make use of the dressings. These applications are extremely  
 painful & the patient should be put under the influence of ether or  
 chloroform.

**XII** After the application of the Cautey the best application is Cold  
 water & afterwards warm water dressings. In the extirpation of tumors  
 from different parts of the body where there is considerable hemorrhage  
 from little points, it is sometimes necessary to use the actual Cautey to

assert it when you make use of a conical a cylindrical instrument. The  
 actual Caustry makes the best issue in affections of the hip joint, also in  
 Cases of Pott's disease of the spine, & also in chronic affections of the spine.  
 Such an issue Can be maintained in an open condition for a long time, longer  
 than one by caustic potash or the visenna paste & the discharge is more  
 abundant, while it makes a more powerful impression on the nervous  
 system. Fire may be applied by the surva. Take a soft substance,  
 as a piece of cotton, roll it up, & put it in a saturated solution of nitrate  
 of potash, dry it, & roll it up in a conical shape & introduce it when  
 applied into an instrument made for the purpose, then during the  
 application, ignite the top of the cone, then holding the apex close to the  
 surface of the skin promote ignition by the blow pipe or the breath, & thus  
 produce a powerful stimulating impression upon the parts & by con-  
 tinuing the application you may produce vesication, & finally an  
 Eschar & Slough. This is applicable to the treatment of neuralgic affec-  
 tions & diseases of the eye or ear. Tartar emetic is often used for this  
 purpose but I do not like it as it is apt to produce Constitutional  
 impressions. Occasionally during the application of tartar emetic  
 the genital organ becomes covered with pustules although no appli-



Cution is made there, & the ointment when employed should be used carefully, & not to too large a surface, & not to a part habitually exposed, as it is followed by disfiguring scars. Cotton oil is not so objectionable. It may be used pure, & diluted with olive oil or lard, & should be used very carefully as it may diffuse itself over the surface & direct the patient not to apply his fingers to his eyes or the result will be violent inflammation.

Inflammation often ends by effusion of Serum & this is the most common termination. The effusion is the result of a vital action denominated Serosity. The Serum is usually whitish, very frequently dark, sometimes it is of a lemon color, sometimes like milk, & sometimes of the color of chocolate or coffee grounds. On chemical examination, it is found to consist essentially of water, with albumen & some earthy salts. The quantity varies from a few drops to many ounces & sometimes even gallons. During the progression it is furnished most by those parts furnished with large quantities of loose cellular substance, & those cavities lined by serous membranes. When the accumulation occurs in different places, it is differently called. This fluid is generally produced by the morbid action. Mere obstruction in the blood will often give rise to effusion & sometimes to a great extent.

Effusion of Serum is attended with diminution of red globules, & fibrine & albumen & we should render it more full of plastic matter. When the inflammation oppresses the parts it expands them, when practicable as in the leg & other parts, you make a puncture & apply bandages. When there is high inflammatory action & the bandage & elevated position will not suffice you must use other remedies. When there is accumulation in the chest & abdomen of the quantity is small stimulate the absorbent vessels & induce them to remove the effused fluid. You use hydragogue cathartics, give jalap or elaterium or some salts of magnesia & act upon the capillary vessels of the serous membranes. Give also diuretics & when the accumulation is very great, no matter what cathartics & diuretics you employ you can relieve the patient without drawing off the fluids, if the pressure made upon the lymphatic vessels is too great you must aid them by surgical operation. There is also an effusion of coagulating lymph another constituent of the blood; the effusion of the fibrine or plastic matter of the blood. It is of a pale straw color, sometimes dark from the admixture of the coloring matter of the blood. It is of a viscid consistence.



It is deposited in a soft & fluid state. It is chemically composed essentially of fibrin, with albumen, water & earthy salts. It is furnished in larger quantities & much more readily by some tissues than by others. It is large in inflammation of cellular tissue & serous membranes especially in Pleura & of the peritoneum; & is furnished sparingly in inflammation of the mucous membranes & other parts of the body. It is most common in the mucous system above the diaphragm & respiratory organs. In the brain & spinal cord, nerves, blood vessels, cartilages, tendons, ligaments & structures we have it very sparingly, & in some structures, scarcely at all under any circumstances. In inflammation of the arteries it is poured out in great quantities, in inflammation of the viscera & lungs we have large quantities of this effusion. The period at which the deposition takes place is variable, it generally begins very early after the commencement of the inflammatory process. In incised wounds the surface becomes coated in a very few minutes after the blood has ceased to flow. It presents itself in the form of flobules united by a kind of matrix variable in size, round in shape, with surface rough. It is a vitalized fluid. Sometimes we find lymph deprived of its vitality, when it is calculated to injure the parts with which it comes in contact. After

circumstances are favourable it becomes vascularized & becomes part of the structure with which it comes in contact.

**XIII.** Coagulating lymph is always the result of inflammation, either light, or more or less severe. When poured out in cellular substance it is presented in the form of little masses having the shape of the cells of the cellular tissue; in the bowel it assumes the shape of the alimentary canal & forms cylinders, & the same in the lungs & bronchial tubes & in the urino & uterine. Occasionally it is presented in the form of bands as in inflammation of the peritonium. On examination with the microscope it is formed of globules of a spherical shape, considerably larger than blood globules, & vary in their size, the largest found towards the focus of the morbid action. Recently two varieties of lymph have been described. In one it is composed almost entirely of fibrine & these substances remarkably coagulable, & it has a remarkable tendency to organization; & with the other form, the reverse is the case, where it is called corpuscular, being composed of small & numerous globules, & the mass in which they float is usually somewhat soft & has a tendency to disintegration, the globules often converting themselves into pus globules. The fibrinous lymph comes exists in high states of inflammation, in presence of strong



habit, & in the inflammation of serous membranes. The capsular form  
 is found in persons of debilitated conformation, & does not coagulate, nor tend  
 to resorption. The organization takes place in the same manner in which  
 the original tissues are organized, & when it is organized then are blood vessels  
 in it. It has been said that this substance is organized by the aid it derives  
 from the surrounding surface, & it has also been said, that it has a  
 power of its own by which it undergoes its vascularization. In the majority  
 of cases it is organized by the blood vessels, nerves, & absorbents, extending into it  
 from the organs from which the lymph has been furnished. The other  
 formation can only take place when the lymph is in a high state of vitality.  
 The period at which this vascularization takes place is variable, in some  
 cases occurring a short time after the deposit. In order to take place the violence  
 of the inflammation must have subsided, as it cannot take place while the  
 part is in a high state of inflammation. A deposition of coagulating lymph  
 is often useful; as in wounds, reunion of the divided parts is effected by this  
 deposit, & if it were not for this deposit the smallest puncture could not be  
 united & would become a festering sore annoying the part & the individual.  
 When there is a wound, inflammation takes place, the blood vessels pour  
 out the coagulating lymph, & the parts are perfectly healed at a period.

varying from a few hours to several days. It is Indy of use in the re-union of parts separated from the body, either partially or totally, as in the case where a finger is detached or wreathly severed. This is manifest in plastic operations, which consist in taking a flap from a contiguous & transferring it to a neighboring part to repair disfigurement. Another Galenic method is the old ~~Galienic~~ or Galienic method which consists in taking a flap from a remote portion, & these operations are founded on our knowledge of the uses of this Coagulating lymph. Indy It is of use in circumscribing & limiting inflammation. H<sup>thly</sup> It is of importance in circumscribing foreign bodies; as when a ball or shot remains for a long time in the body, when it becomes completely harmless from being surrounded by a layer of Coagulating lymph, becoming converted into a cyst. H<sup>thly</sup> It is of importance in limiting abscesses & in preventing other mischief. In the process of pulmonary consumption matter is discharged usually by the bronchial tubes for in proportion as the matter reaches the surface of the pulmonary pleura, inflammation is established in the corresponding portion of the costal pleura, & under the costal & pulmonary pleura together. Only It is of great importance in obliterating Cavities in Surgical operations; as in



hydrocele where the fluid is drawn off & some irritating foreign substance is introduced, & thus the Cavities are obliterated. The presence of coagulating lymph is often capable of producing serious mischief, as in pneumonia, where it causes induration of the lung & destruction of its components & the patient dies from the want of air. This is also the case in inflammation of the pericardium; in inflammation of the joints & in inflammation of the eye where the deposits of coagulating lymph are deep seated & extensive as is also the case in stricture of the urethra.

XIV. In the early stage of the deposit of lymph you must use depletion, by the lancet, leeches, or cups as the case may be. You must use mercury with a view to its alterative effect, the object being to prevent the deposit to as great an extent as possible. It should be given combined with opium & some nauseant. After the violence of the morbid action has been subdued, you must remove the lymph, for although the inflammation may have become moderate, great mischief may have been produced in its former stages. To remove this substance continue the use of mercury until there is slight ptyalism, & maintain this action until a sufficient impression has been made upon the absorbent vessels, to enable them to perform their proper functions. Tend to the Secretions generally.

As local means make use of various forms of counteragents. This effect can be often greatly increased by dry friction; & more generally for orders to embrocations. Inflammation sometimes terminates in suppuration or the deposit & discharge of pus or purulent fluid, & the formation of abscesses. When there is suppuration, we have a more exalted degree of inflammation than where there is merely a deposit of coagulating lymph. The result of this process is the formation of what is called pus of which there are different kinds, as the laudable or healthy pus, the sanguinary or bloody pus, lymphous or plastic, & tubercular, & mucous pus, or mucro purulent matter. Laudable pus consists essentially of a great number of globules suspended in a serum fluid analogous to the watery portion of the blood. The fluid is of a pale straw color, or more or less whitish, somewhatropy in consistence, possessing no alkaline properties unless it has lain for sometime. At the temperature of the body it emits a faintish peculiar odor, & assumes a peculiar taste, & is ~~readily~~ readily coagulated by heat, alcohol, and minute of ammonia & is specifically heavier than blood or water. Examined microscopically, it is found to consist of a large number of peculiarly shaped globules of a spherical or rounded shape, but not



uniformly so. Each globule has in its interior several molecules. There are generally two or three in each one which are very compact & surrounded by a distinct edge. In this kind of pus the term laudable refers to the action of the part by which it is furnished & also to the action of the System & the parts are tending towards restoration. It is said to be ichorous or sanguinous pus, when mixed with the serum of the blood & more or less coloring matter, imparting to the fluid its peculiar appearance. It is irritating in its properties, condensing the parts with which it comes in contact, because it always contains a considerable quantity of saline matter. It is furnished always in Carious or necrosed bones, in irritable ulcers of the extremities, in ulceration of the skin attendant on Cancerous growth as in Cancer of the mammary gland & is always denotive of unhealthy action of the part. Fibrinous or Lymphy pus contains a certain quantity of the fibrine of the blood, which is found most commonly in inflammation of the serous membranes of the pleura, pericardium & peritoneum, & in inflammation of the Synovial membranes of the joints & in inflammation of the skin. It is not organizable. Scrophulous pus is met in Scrophulous & tubercular Compositions. When it stands it separates into two parts; one remains at the bottom composed of crude Substance having very few globules; the other is

fluid in appearance of dry consistence, & usually somewhat of a greenish or dark yellowish color. It is found in the Cavities of the lungs, in inflammation of the lymphatic ganglions of the neck & other parts of the body, & in the joints in white Swelling, in Scars & lumbar Abscesses.

It is Specific in reference to the action of the part and the action of the system. Occasionally the pus has a gummy appearance, as in the inflammation consequent on a tainted condition of the system, from the absorption of the Syphilitic virus, consisting mainly of Coagulating lymph,ropy in character, & of a whitish aspect. Pus has a dense purulent matter<sup>d</sup> is furnished by the mucous membranes in the seat of inflammation & is combined with a large quantity of epithelium cells. There is another kind of pus which is offensive. We have inflammation of the <sup>Ozæna</sup> Schneiderian membrane of the nose, attended with a discharge exceedingly fetid. In abscesses growing at the verge of the anus the matter is always highly offensive from its proximity to the fecal matter in the intestine; in abscess of the peritæum the fetor is fetid, & in certain abscesses of the lymphatic ganglion of the neck it is offensive, apparently from long retention, & in this condition it contains Sulphuretted hydrogen. Some kind of pus are



containing, as the matter of gonorrhoea, <sup>Chancere.</sup> ~~specific~~ & small pox.

An abscess is an accumulation of matter at a particular part of the body. There are different kinds of abscesses; as the acute or phlegmonous abscess; & the chronic, cold, or stumous abscess; & lastly the metastatic abscess. An Abscess may be seated superficially or deeply; it may affect an external part of the body or an internal organ; they may be numerous or very few, sometimes there being but a solitary one; they may be simple or specific. The phlegmonous abscess is the acute form of the affection. The symptoms are well marked. If it exists in a superficial portion of the body beneath the skin, you have high discoloration of the integuments, great heat, great tumefaction & great pain, along with disordered function & more or less change in the character of the blood. This abscess is rapid in its course, reaching its highest point, in from 3 to 6 or 8 days, according to the nature of the affected parts; and then is also great constitutional disorder, & high symptomatic fever especially if the abscess is of considerable extent. An abscess may be seated in any part of the body; sometimes in the lungs, heart, brain, liver, & spleen but seldom in these important organs. They are exceedingly common in the

external parts of the body, especially those supplied with an abundance of loose cellular substance. The number is variable. The volume of abscesses varies essentially, from half a drachm & a drachm, to ounces & quarts according to the nature of the affected part, the duration of the disease and the violence of the morbid action. The anatomy of an abscess is an interesting subject of inquiry. At first pus is deposited in the form of a little drop in the subcutaneous cellular tissue; to this there is added another drop, & this process of secretion continues until you have a number of drachms, ounces, or quarts of this fluid. To make room for the accommodation of this secretion by the process of ulceration & progressive absorption, there is a loss of substance. There is also a deposition of coagulating lymph in the immediate vicinity of the abscess, & in consequence of this, the matter is prevented from diffusing itself rapidly around the surrounding parts; further out toward the healthy tissue, there is effusion of the serous portion of the blood. The ulcerative action points toward the nearest surface in either instance, in the external parts of the body as well as the internal organs. At the nearest point it bursts & discharges itself. In acute abscess there is never anything like a



distinct membrane by which the matter is surrounded & circumscribed, as there is in Cases of chronic, cold, tubercular, or stumorous abscesses. On the formation of an abscess there is pain of a throbbing character, increasing swelling & heat, all the local phenomena augment, & the patient has signs. The matter fluctuates in the swelling. In cases of doubt as to whether there is an abscess or not, use the exploring needle as it is called, & if there is matter in it a few drops will follow on the withdrawing of the needle. As the matter reaches the surface the abscess becomes acuminate, & more prominent at the focus of the morbid action. In all these Cases make a free and open incision. The operation is usually a simple one. You may employ a common abscess lancet, a bistoury or a scalpel. The puncture should be made at the point of the abscess, provided all the other circumstances are favorable; if it is so situated that the matter cannot escape readily from the point, the puncture should be made in the most eligible spot. Introduce the instrument perpendicularly or nearly so & carry it into the sac; by depressing the handle & cutting from within outwards, you can enlarge it to any extent requisite; if the abscess is large make an opening from half an inch, to an inch in length, & if it is not so large make a smaller one.

In cases of whitlow you make a free incision to the very bone, in order to save the bone. The matter in an abscess will generally discharge itself from the pressure of the atmosphere; but if it is necessary press with the fingers, but very delicately. Prevent the opening from cicatrizing, by what is called a Tent, which is first twisted & after being rolled, is carried into the opening by means of the probe, to prevent the reunion of the edges of the opening, & thus preventing the necessity of making another opening, that the matter may drain off as fast as it is secreted, & not be permitted to remain in the interior of the cavity. If the abscess is small apply warm water dressings or emollient poultices. If the abscess be deep & the matter has burrowed extensively among the muscles, after the evacuation has been effected, bring the parts carefully together by means of the compress & bandage. An abscess may be opened by caustic but this is a barbarous method. The dressings before & after the operation are of warm water & emollient poultice; & the constitutional treatment should be the same as in ordinary inflammation.

**XV.** In abscess forming at the verge of the Anus, an early & free incision is a matter of the utmost importance. The matter if allowed



to remain will burrow in the surrounding parts & deplete the bowel,  
 & make an opening forming a fistula; & by an early puncture the  
 matter will flow off as soon as it is accumulated. The same is the  
 case in abscess of the proctosum. In abscess of the fauces an early &  
 free incision is necessary to preserve the life of the patient. When the  
 quantity of matter is small & external not connected with any surface,  
 especially when the inflammation is of a chronic character & specific in  
 its nature, after the evacuation bring the parts together by a Compress  
 & bandage; the pressure should be uniform & that should not be made  
 over the opening. Sometimes we must make a counter opening  
 when the matter accumulates after the opening in a kind of pouch.

After the puncture introduce a tent or in some cases a small  
 seton. Sinuses or passages are occasionally left after the formation & resolu-  
 tion of abscesses, communicating with the external surface & terminating  
 in a cul-de-sac, & which must be obliterated. If they are small &  
 superficial you should inject some stimulating liquor, one part of the  
 tincture of Iodine & 3 or 4 parts of alcohol, or a cool solution of  
 nitrate of Silver or some astringent substance as acetate of lead or  
 sulphate of Copper, taking Care the parts are afterwards put under

the influence of Compression. If this does not answer resort to incision. The healing of an abscess is generally effected by the healing process, & not by granulation. In opening an abscess we sometimes puncture an artery giving rise to a certain amount of hemorrhage; in an accident of this kind enlarge the incision & apply the ligature.

The chronic abscess has been often called the cold, Scrophulous, Strumous or Tubercular abscess. This variety is always of a chronic character commencing in an incipient form. The membrane circumscribing the matter & preventing it from spreading in the surrounding textures is an adventitious tissue & is highly vascular. The most common situation is in the skin, or in connection with the lymphatic ganglions of the neck & axilla, & in Potts disease, & hip joint & knee joint disease & in lumbar abscesses & is always connected with a Strumous, Scrophulous, or tubercular condition of the System. When small they may be overcome by Embrocations, liniments, or any kind of embrocations calculated to stimulate the absorbent vessels, & induce them to remove this fluid by minute doses of chloride of mercury. When the matter exists in large quantities you make an opening in a sort of valve like manner & so as to



exclude the atmosphere from the abscess because it leads to the decomposition of the matter remaining after the opening. In making the incision pass the instrument between the skin & wall of the abscess, & then elevate the needle (supposing you use a trocar) & the matter will flow, then push in the cannula & withdraw the Trocar, & when enough has been drawn off put the finger on the Cannula, after withdrawing this make pressure on the orifice which is closed by means of adhesive plaster, a compress & bandage. If the matter is in large quantity draw off about  $\frac{2}{3}$  or  $\frac{3}{4}$  of it, repeating it every few hours until a cure is effected. After the operation the best dressing is a water dressing or emollient poultice. There is another kind of abscess called the metastatic abscess. It seldom occurs & not in large numbers there being generally 3 or 4 dozen their size being in proportion to their number. Most of them are met in the subcutaneous cellular tissue, the articulations of the larger joints, & in the internal viscera as in the lungs, liver, Spleen, & kidneys, & occasionally in the heart & brain. The matter is composed in great measure of coagulating lymph deprived of its vitality & mixed with some pus globules. Hemorrhage is often the result <sup>inflammation</sup> of acute or chronic

## XVI.

Inflammation sometimes terminates in mortification, which is truly a termination of the morbid action, inflammation ceasing in the affected part killing the affected structure, the rest of the organism retaining its vitality. It has been called gangrene, mortification, & sphacelus. It is a partial death or destruction, all parts of the body being liable to this occurrence, some more so than others. The cellular tissue, tendons, ligaments, fibrous membranes & cartilages are exceedingly prone to perish from the effects of inflammation, especially when their connection with the surrounding structures has been destroyed by the death of the cellular tissue, & bone is prone to die when it has been deprived of its periosteum. Other structures resist this mode of termination to a very great extent, as the blood vessels & the nerves. Mortification is comparatively rarely observed in the internal organs. In inflammation of the lungs & brain it is rare, in inflammation of the heart it is exceedingly rare, inflammation of the liver, spleen, kidneys, & uterus, very rarely terminates in mortification, the patient being deprived of his life before the inflammation has time to produce this result. Some parts of the mucous system are more prone to mortification



than others. In the mucous membrane of the mouth, throat, & tonsils it is common, but not in that of the Oesophagus, Stomach, duodenum, & upper portion of the ileum, while in the lower portion of the ileum & in the colon it is frequent. In the urinary bladder, urethra, uterus, & kidneys it is exceedingly infrequent; & in inflammation of the prepuce, & glans penis, & the vulva, it is by no means uncommon.

Bone is liable to perish when it takes on inflammation, as by its organization it is incapable of resisting high morbid action. Mortification takes place under the influence of a variety of causes, sometimes the inflammation is acute, & at other times it is chronic. Sometimes the parts are humed or moist, or dry. Occasionally mortification is idiopathic resulting without any cause, or it may be <sup>traumatic</sup> ~~traumatic~~ ~~inflammation~~ <sup>inflammation</sup> mortification. One of the most frequent causes is acute inflammation, the parts seeming to be overpowered by the morbid action. Immediately before the mortification, the symptoms of inflammation augment, & at the commencement of the mortification they all cease except the tumefaction. When the mortification is in the cutaneous substance of the skin it presents a mottled appearance, all the parts not dying at the same moment, but the darkness increases as the process extends, the

skin assumes a dark complexion, & at the last stage it is completely  
 black when the part is completely deprived of its functions. A few hours  
 after this event has taken place the surface crackles upon the appli-  
 cation of the finger. All parts do not present the same appearance,  
 when in this condition, as in the case of tendons or bones which undergo  
 very little change because they have very few blood vessels. In the  
 internal organs the same circumstances prevail. (During these changes  
 the system highly sympathizes; during the heat of the inflammation  
 immediately preceding this termination there is an increase of the  
 symptomatic fever, & as soon as it has taken place, & sometimes  
 before it has set in there is a tendency to produce a typhoid condition  
 of the system. The parts after being mortified are cast off by what is  
 called ulcerative action or absorption. This is performed by the living parts  
 in immediate contact with the dead; & under the influence of this action,  
 in the first instance we have the formation of vesicles one or more  
 extending around the mortified part, & they form a reddish line  
 which is the line of demarcation between the dead & living parts  
 During the progress of the mortification has been arrested, & nature  
 is making an effort to rid herself of the dead parts, & this process



extend from one tissue to another until the part Sloughs off, & parts  
 by a kind of natural amputation. Some parts separate sooner than  
 others, those endowed with a great degree of vascularity. In the  
 mortification of parts the blood vessels take on a peculiar inflammation  
 their coats adhering to it the blood coagulates, preventing hemorrhage.  
 One cause of mortification is an insufficient supply of blood, which  
 may arise in a part from the injury of large blood vessels. Want of  
 nervous energy in a part will give rise to mortification. There are  
 chemical causes of mortification, as the application of Cold, warmth,  
 heat, alkalis, acids, or some malignant poisons. Constitutional  
 causes frequently produce three effects which may be produced by  
 impoverished Condition of the blood. Frequently it is produced by  
 obstruction of the circulation, leading to congestion of the parts below. The  
 effect of purgatives, leading to violent purging & vomiting are occasionally  
 followed by mortification. The influence of mercury carried to salivation,  
 sometimes produces mortification of the cheek, tongue, & jaws, espe-  
 cially in scrofulous Subjects. The use of certain kinds of food as eye  
 bread containing ergot gives rise to mortification. In some of these  
 cases the gangrene begins in the foot extending along the leg, & some

times it begins nearly at the same moment in both extremities,  
 & sometimes it arises in the nose, chest, & those parts of the body  
 where the circulation is naturally languid. In some of these cases, the  
 parts are dry & in other cases there is great moisture, & fetor, & ex-  
 cessive pain. When mortification is about to take place from  
 inflammation, moderate it by the employment of the antiphlogistic  
 treatment. If the patient has a strong, vigorous pulse, & is nat-  
 urally robust, take blood from a large vein in the arm, & bleed by  
 means of leeches. Keep the part in an elevated position, & perfectly at  
 rest, & if there is great tumefaction, make a free incision, to allow  
 the vessels to discharge themselves & the fluid to drain off, apply an-  
 dydes, & simple or medicated punctures. If mortification has taken  
 place support the system & promote the formation of sloughs. Use  
 carbonate of ammonia in large & repeated doses, a large quantity of  
 quinine with alcohol in the form of brandy or spirits of some kind  
 or pure wine in large quantities & give nourishing food to sup-  
 port the patient. To correct the fetor use antiseptics, the best is  
 the liquid chlorinate of Soda, or Labarraque's <sup>liqueur</sup> <sup>Liq. Soda Chlorinat.</sup> disinfecting liquid.  
 Relieve the inflammation above the line of demarcation, & an









Excellent lotion is 3 or 4 drops of nitric acid to the ounce of water; a poultice made of linseed, or slippery elm or any such kind of pectine the dressing should be, slightly Stimulating. If the parts are deprived of vitality get rid of them by the Scalpel & forceps dissecting them off taking care not to interfere with the living Structures. If there is a line of demarcation & mortification has been produced by inflammation & the patient's System is in a good Condition, do not hesitate to perform amputation if the affected part be a limb. In Traumatic inflammation you need not wait until you see the line of demarcation, but anticipate this by the knife when the wound will unite with very little difficulty because the part & the System will be capable of resisting the inflammation; If mortification has been produced by some internal Cause, depending on different Causes, the rule is always to wait until the line of demarcation & the Sloughing process has made some progress. There is another kind of mortification called Senile mortification, or the mortification of old people, which is <sup>not</sup> altogether peculiar to old age, it usually begins on the inside of one or more toes in the form of a black spot & extends upwards until it reaches the instep, then the Ankle, & sometimes the middle of the leg.

It is usually dependent upon obstruction of the circulation, ossification of the arteries. In such Cases treat the part on general principles supporting the system, & give large quantities of opium, Eucalypti of ammonia, quinine, brandy & such things. Do not amputate until sometime after the line of demarcation has formed. This is a rare form of mortification. In Cases of mortification give opium in large quantities, for an adult 3 or 4 grains every 4 or 6 hours according to circumstances.

**XVII.** In small gangrene the disease commences in small vessels about the size of a pea. Ulceration another event of inflammation, rather of an acute or chronic character most frequently of the chronic form. It is the molecular death of a part, it is mortification on a small scale. It may occur in any tissues or organs of the body but is more common in some than in others. The skin, mucous membranes &c are most liable. It is seldom observed in any organ except the intestines unless there is an abscess or a foreign substance present. Ulceration of the large bowels & the inferior portion of the small bowels is very common. In all cases of ulceration there is inflammation. The process may be rapid or slow, it may be common



or specific. When an abscess or foreign body exists in an organ & underneath the skin the ulcerative action always has a tendency to extend to the nearest surface. All the causes of inflammation may give rise to ulceration. The process being accompanied by inflammation you must employ the antiphlogistic treatment to reduce the inflammation, suppress the morbid action & invite the formation of granulations by which the breach produced by ulceration will be filled up. Granulation is intimately connected with ulceration. A granulation is a small vascular body complex in structure, of florid complexion, & usually somewhat of a conical or rounded shape formed out of the coagulating lymph of the blood. Its first is to close solutions or breaches of continuity. The red color depends upon the quantity of blood, the vessels consisting of one artery & several veins, the artery entering the base of the granulation divides into a number of branches, as is the case with the veins. Each body has a distinct nerve. Each granulation is an absorbent body. These granules secrete pus of a laudable character. They are subject to disease, being frequently exceedingly pale insensible bodies. Sometimes they are large & they are frequently morbidly sensitive. They are liable to atrophy & hypertrophy, & are liable to inflammation. Cicatrization is the formation of a Scar

or cicatrific. Cicatrification is the completion of the process of reparation, & when it is about to take place there is a subsidence of the inflammatory action. It always extends from the circumference towards the center, until the parts meet from the opposite side; the granulations become levelled down, & smoothed upon the surface & the next layer of lymph is converted into skin & the process advances until the breach is closed. The new skin is of a dark complexion & is more feebly organised, & when the part is again invaded by disease the cicatrized parts will yield much readily & some substances are never repaired in the original manner.

A wound is a solution or breach of continuity. There are different kinds of wounds which may be superficial or deep, cutaneous or muscular. They may be incised, lacerated, punctured, contused, poisoned or gunshot wounds, named according to the instruments by which they are inflicted. An incised wound is merely a cut made with a sharp instrument as a scalpel, & may be small in extent & superficial, or may be penetrating, opening a joint or a pleuritic cavity. In the 1<sup>st</sup> place, there is immediately a retraction of the edges of the wound 2<sup>nd</sup>, there is an effusion of blood 3<sup>rd</sup> there is some or



less pain. The retraction of the edges is produced by the natural contractility of the parts & the wound is said to gap. The effusion of blood is produced by the injury sustained by the vessels which may be capillary, arterial or venous. The pain is produced from the division of the nervous filaments, & if a nervous trunk is severed there may be paralysis. The indications presented are simple. 1<sup>st</sup> To arrest the hemorrhage especially if it is arterial in its character, which is accomplished by the application of the ligature 2<sup>nd</sup> To remove any foreign substance which may lie in contact with the wound, as dust or hair, or a small pebble or anything of that kind, carefully. The best instrument to use is the thumb & finger or the forceps picking away particle after particle. If this does not do take a sponge, dipped in water & holding it some distance off, press out the contents so that the stream can pass directly over the wound & treat the part as gently as possible 3<sup>rd</sup> bring the edges in apposition to each other, & maintain them in this position for sometime; & 4<sup>thly</sup> Keep the inflammation within proper bounds or limits. If the wound is superficial & small you need only adhesive strips applied in a certain manner, & nature finishes the work by uniting the edges of the wound firmly. If the wound

be long & deep it may be necessary in addition to employ Sutures & afterwards to apply a bandage & to maintain the parts more accurately in their position than can be done by adhesive strips.

**XVIII.** The adhesive strips should be so placed, that there should be a little space intervening between each two strips to allow of drainage.

They should be allowed to remain on long enough to perform their functions well generally from a few days to two or three weeks. Sometimes from the supervening inflammation or from some other cause it is necessary to change the strips. To remove the old strips properly take hold of one end & lift it off carefully until you get within an inch or half an inch of the wound, then perform the same office for the other extremity; the small portion now to be removed being in close proximity to the solution of continuity must be taken off slowly & gently supporting the edges of the wound while you do it. This will prevent the rise of inflammation & the tearing of the edges apart. If the wound is large take off only one or two at a time & substitute others so as not to remove all the support at once. When there are discharges do not wipe the surface of the wound, but wash it off by passing water from a sponge held at a considerable height. Several kinds of adhesive plasters are used to.



approximate the edges of wounds. The isinglass plaster is transparent, & has been recommended because it allows the Surgeon to inspect the wound from time to time to ascertain its appearance. The common adhesive plaster is more preferable because it excites to some extent the application of warm & cold water dressings; & the Surgeon can here also observe what is going on in the parts from the appearance of the wound between each two strips. The ising glass plaster may be occasionally used in wounds in exposed parts of the body, & where there is no necessity for water dressings, or but much effusion of any fluid. Another substance has been employed in the treatment of wounds that occur in certain parts of the body. In those parts subjected to motion we resort to the use of Collodion a solution of gum Cotton in ether, which possesses highly adhesive properties, & which is applied by brushing it with a camels hair pencil rapidly upon a piece of patent lint or ordinary linen or muslin, & then applying the strip carefully close the wound in the same manner you do with the ordinary adhesive plaster. You must completely exclude the atmosphere if it be possible as it evaporates rapidly. Be quick in your movements & it can be kept in its position several days. It is not instant except at the moment of contact. Another mode of dressing is by means of the Suture of which there are many kinds; as the twisted,

the interrupted, the quill, the continued, the clamp, & the button suture. The most important for dressing incised wounds in external parts of the body are the twisted & the interrupted. The quill suture is only employed in wounds involving the muscles of the extremities or in the peritonæum. The continued suture is employed chiefly in sewing up wounds of the lower viscera of the abdomen. The clamp & the button sutures are used in vesico vaginal fistula. The twisted suture is the regular hare lip suture made with the most delicate Cambric needle it should be long & cylindrical provided with a head of sealing wax to facilitate the introduction of the instrument into the tissues. If the wound is small take the smallest cambric needle to be found. Introduce a certain number of needles at certain intervals & wrap a thread around them in the form of an ellipse, & it is thus much better applied than when twisted in the form of the figure 8. If the edges do not meet crop the ends of the ligature from one end of the suture to the other suture to keep the edges in close contact. After sewing the ligature you break off the points of the needles to prevent accident, & cut the point off as close as possible without interfering with the application of the ligature. Allow the needles to remain 2 or 3 days.



In half life you remove the upper two needles in 36 or 48 hours after their application, the lower one being retained about 24 hours longer. If they remain in too long they excite ulcerative action. The interrupted suture is made by a needle, straight, more or less curved, small or large, according to circumstances, armed with a ligature. This is passed through the wound in the same manner as the other needles picking up about 2 lines of surface, carry it across, & bring it out at a point corresponding to that where it is introduced, cut off the thread, introduce another in the same manner a short distance off & so on; tie the threads so as to effect gentle approximation which should be even, without tension, & after the knot is tied let the extremities lie horizontally. If the approximation is not perfect you can aid it by interposing adhesive strips. In the quill suture, take two pieces of quill, or sticks of wood rounded in shape & of a proper length confining them to the edges of the wound by means of the double ligature, & the quills are inserted in the loops of the double ligature. In some cases it is also necessary to use the ordinary roller bandage aided sometimes by two compresses which is done in deep wounds to unite the lower as well as the upper edges of the part. after this elevate the part & keep it perfectly at rest, that the heart may put force as much blood into it as it would do were the part in a

pendant posture, keep the part also in as relaxed a position as possible. There will necessarily arise a certain amount of inflammatory action to make the wound unite; & if there is too much inflammation there may be mortification, & there may be no union. Therefore after dressing, you must regulate the resulting inflammation. If the parts unite with the proper action it is called adhesive inflammation, or union by the first intention. Union by the second intention is union by the process of granulation. When the proper union has not taken place by the 1<sup>st</sup> intention, though too much inflammation or some other cause, it will unite by the second process: the inflammation becomes moderated a thin layer of lymph is laid on the surface which becomes vascularized & organized, & gradually as the blood vessels pass into it, elevates itself into a little point, on which come the granulations & another & another layer is formed until the granulations almost reach the surface. There is another mode lately described called the mottling<sup>ed</sup> or scabbing process, & is seen in particular parts of the body where a wound is allowed to gap, when presently there is an effusion of lymph which forming into granulations eventually heals the wound by its process.



XIX.

The Scabbing or <sup>adhesive</sup> mortifying process was first described by Sir John Hunter of Dublin. By this process is understood that mode of union where a wound is gaping & where a deposit of coagulating lymph takes place without inflammation & without suppuration. This Dr. Gross says he cannot understand, as he considers no deposit of coagulating lymph can take place without some inflammation however slight it may be. We have therefore but two modes by which the union of a wound is effected; union by the adhesive process or by the first intention, & union by the granulating process, or the second intention. In treating wounds to promote adhesive inflammation the parts are not to be over dressed, or encumbered in any way, otherwise this process will be impeded or prevented. Let the dressings be as light as possible using merely adhesive strips, or when they are not sufficient, using sutures, aided if necessary by means of the bandage, & not applying Compresses, or patent lint, or Cotton as a general rule as they invite suppuration instead of adhesive action. Another class of wound is the punctured wound, which approaches to the character of incised & contused, & may be inflicted by a variety of sharp pointed instruments. Such a wound is usually very narrow, while it may

or of considerable depth, the instrument often passing into a joint, or  
 a splanchic cavity. They possess certain characteristics. They are  
 exceedingly common in the feet especially among the poorer class of  
 people; also in the fingers & hands, & are always fraught with danger  
 to the part more than to the system. Such wounds are liable to be followed  
 by erysipelatous inflammation, severe nervous symptoms sometimes  
 resulting in tetanus. When the wound is in the feet, there may be serious  
 effects, if the patient is of a nervous temperament, or somewhat debilitated  
 from debauchery or other causes. In a part where the structures are so  
 dense & resisting as in the hand, foot, finger, or toe; violent inflam-  
 mation is apt to result, extending sometimes up the limb, & sometimes  
 wounds in the feet are followed by inflammation of the lymphatic ves-  
 sels, as in wounds inflicted by the tinea pedis. The indications pre-  
 scribed in this case are easily fulfilled. In the first instance the object  
 is to remove the foreign substance whatever it may be. It may be  
 sometimes necessary to dilate the parts where you must make an  
 incision down to the foreign substance, & having exposed it seize  
 hold of & extract it. Having accomplished this important object  
 then treat the case upon general antiphlogistic principles, putting



the parts at rest & in an elevated position, & according to circumstances,  
 making indicated applications, or simple Cold applications, or warm  
 applications, mediated sometimes with opium, laudanum, or morphine;  
 ease the part & the System, & if nervous Systems arise, give large quan-  
 tities of opium, laudanum, or morphine, in large & repeated doses to  
 control these symptoms, preventing the development of disastrous  
 results. If the parts become dense & delate the parts making free  
 incisions or punctures to give vent to effused fluids, & to enable the  
 blood vessels to disgorge themselves. Occasionally there is a tendency to  
 contraction after the inflammation has subsided, & to prevent this  
 secure the limb to a splint & use the proper bandage. Sometimes  
 needles enter the flesh, about the fingers, hands, & wrist, & are broken  
 break off leaving portions of extraneous substance within, which may be  
 buried among some soft parts, & there may be embarrassment in per-  
 forming extraction; some days having elapsed since the occurrence of the  
 accident before a Surgeon is consulted, & the parts having become  
 cicatrized, folding the integuments upon each other; make impression  
 with the finger to ascertain the situation of the body, & then  
 make a free incision down upon it, & extract it, being careful

to inflict no undue injury upon the parts. Another class of wounds is the lacerated wound, in which the tissues are torn & under. Such wounds are usually inflicted by machinery in more or less rapid motion, or by the passage of the wheel of a carriage over the part, or from the bite of an inferior animal. They possess certain peculiarities. They are frequently exceedingly formidable through their extent, & the structures involved. They are often followed by secondary effects very dangerous. They have peculiarities in regard to hemorrhage; in regard to pain, & also in regard to resulting inflammation. In the first place such a wound seldom bleeds to any extent & the reason is, there is no great hemorrhage. Every artery is preceded of a certain number of tunics. In a lacerated wound the artery is torn, & therefore the internal & mucous membrane & the blood is arrested in its course being brought under circumstances favorable to its coagulation, & an internal clot is formed; & the artery is also in a state of paralysis from the injury inflicted; & these two circumstances existing in such cases prevent any excessive hemorrhage by promoting the coagulation of blood in the interior. The pain is usually trifling & this may be explained on the supposition that the



parts are paralyzed & deprived of their ~~nervous~~ influence, a lacerated wound has a tendency to suppurate or to slough & the wound will unite by the second intention, & there may be more a less gangrene or mortification. There is occasionally secondary hemorrhage after reaction has taken place. The 1st indication is to arrest any hemorrhage that may exist, or may be expected to take place after the reaction occurs. The 2nd is to remove any foreign substance 3rd To prevent any undue nervous symptoms, & 4th to endeavor to circumscribe the inflammation. Bring the parts in contact by adhesive strips, sutures, & bandage. They must not be approximated too tightly. Leave room for the resulting inflammation. Compression is injurious. Do this & the parts may do well. Do not cut off any part, when there is suspicion of their utility as far their vitality is concerned. The rule is to save & not to destroy. Make use of water dressings Simple or medicated, & treat the case according to what you see & what the patient feels. If the wound involve an extremity & important joints have been laid open, the bones broken, & nerves injured, the question arises as to the necessity of amputation. If excessive mischief has been inflicted upon the soft parts, bones & joints, so that

life cannot be maintained in the parts below the injury, the rule is to amputate, especially in warm weather, & if the patient is debilitated. In such a case, always call in proper counsel to protect both yourself & the patient. Do not amputate until reaction has taken place, & the pulse acts nearly with its accustomed vigor, & the circulation has been reestablished. Do not wait until there has been too much inflammation. There are occasionally

violent contusions which may exist by themselves or may be joined with injuries, lacerations & wounds of the soft parts; & they may be inflicted by machinery, cannon ball, & various other ways. In general you treat the wound the same as in the case of a lacerated wound.

Poisoned wounds are inoculated with a virus or poison. There are many varieties of wounds of this description which may be inflicted by the bites or stings of living animals or may be received in smacking & lamination of dead bodies. There are numerous poisonous insects, & many poisonous serpents; poisonous wounds may be inflicted by rabid animals; & there are also the dissecting wound, & a class described under the name of malignant pustule. Such wounds as are inflicted by poisonous insect are dangerous in persons of



certain constitutions who labor under idiosyncrasy. In such wounds there is a little elevation with a white spot in the center, there may be much swelling, & also on receiving the wound a disposition to swoon or faint which generally passes off very readily. Occasionally a bee or wasp is swallowed in some manner; & by its fastening itself upon the mucous membrane of the throat a sting may be inflicted followed by serious consequences. The treatment of this class of wounds is simple, the object being to neutralize the poison, & the best remedy is a local stimulant, as aqua ammonia, the liquor potassæ, Spirit of Camphor, or alcohol, brandy, a solution of alum or a solution of nitre, which should be applied freely to the part; & if there is constitutional disturbance, give doses of brandy & aqua ammonia, into morphine, laudanum, or opium. If the sting remains, endeavor to remove it as speedily as possible. If the wound is in the fauces or oesophagus, give emetics of mustard & salt, or salt water, or some alkaline solution, & treat the case upon general principles. In regard to the bite of a venomous snake only a few words are necessary. A poison of this kind inflicted on the body, especially in warm weather, is exceedingly acid, & may

produce violent symptoms in a short time, followed by excessive tumefaction, induced by an effusion of blood & serum, the surface assuming a kind of appearance, being soon sieged with great numbness. The swelling frequently extends over the greater portion of the body. There is also great depression of the constitution; all the sensations are impaired. Death is occasionally produced in a few minutes, at all events in a few hours, or a few days. The treatment is simple. If you are present when the bite is inflicted, or immediately after, prevent the absorption of the virus by casting a ligature around the part some distance above the wound, constricting the parts as thoroughly as possible. With the knife incise the parts extensively; then apply a cupping glass to allow the blood passing off to wash away the poison; leave it on an hour or two, & then scar the parts by means of the actual cautery. If you are called upon too late, & the patient is prostrated try to support him by anodynes in large quantities & by means of stimulants especially alcohol from a pint to a quart or as much as he can drink making him actually drunk; & this is the only treatment upon which any reliance can be placed in a case of this kind. The parts must be treated upon general antiphlogistic principles.



XX. Another class of poisoned wounds are inflicted by rabid Animals  
 & cause the disease called hydrophobia, which can be inflicted by Animals  
 of the Canine & feline race. Hydrophobia is most commonly produced  
 by the bite of a mad dog, Man & the herbivorous animals generally are  
 not capable of producing this disease, the latency of which varies under  
 different circumstances. The poison resides in the Saliva. No treatment  
 has been known to be of any avail in saving the life of the patient, & all  
 we can do is to prevent its development, & we can often employ this method  
 after the wound made by the animal has begun to fester for this poison  
 remains in a state of latency confined to the parts in which it has been  
 inserted for some length of time. Remove the affected parts by a free  
 incision including some healthy tissue around, & make the amputated  
 as much as possible by the cupping glass, or by means of section, & seal it  
 hermetically with the Lapis, & thus protect the part & the System  
 against the recurrence of this horrid disease. If the bone of any part  
 has been injured it is often necessary to remove it, & even in some cases  
 to amputate the corresponding limb. After hydrophobia has commenced  
 all you can do is to render the patient as comfortable as possible, by  
 anodynes, & the inhalation of ether or chloroform, death generally

taking place in about 3 days. There is another affection Capable of producing a poisonous wound & this is glanders more common to the horse, but which has been seen also in man. Several affections are produced by examining dead bodies forming dissection & other wounds. A slight puncture inflicted with the tenaculum or Scalpel or needle, upon any exposed part is Capable of producing serious results, in consequence of the invasion of a poison which is secreted either during the last moments of life, or is created immediately after death. The puncture becomes inoculated, & forms in the first instance a purple or speck followed soon after by a vesicle, this by a pustule, & this finally by an Echar. The resulting inflammation is erysipellatous, & often extends over the entire limb & sometimes over the corresponding side of the body. It invades all the component structures frequently constituting a bad erysipellatous form of inflammation attended with Constitutional disturbance. The period of latency is frequently very short. Frequently the inflammation is confined to one or more lymphatic vessels in the slighter cases. In the worst forms, the swelling occasionally begins in the axilla of the corresponding side of the body & extends down towards the puncture. Along with this there is a good deal of heat, pain



& all the other Symptoms of inflammation. After a while the Symptoms become of a typhoid Character. Many of these Cases terminate fatally; others recover after great Suffering & severe distress of every description, frequently followed by loss of function of important joints & of great Contraction of Muscles & ~~of~~ <sup>the</sup> Joints. Death generally takes place within the 10<sup>th</sup> or 14<sup>th</sup> day.

The treatment is prophylactic. Means should be taken for extracting the poison, which is best accomplished by keeping the part under a stream of water, & then sucking it. The wound should be made to bleed. Then take a piece of nitrate of Silver, cut it to a small point & insert it into the wound; or you cauterize the part with the acid nitrate of mercury, or nitric, or sulphuric, or muriatic acid. In bad Cases support the System, increasing the Secretions if possible, which is done by the use of small quantities of calomel, purging slightly. To allay pain & induce sleep give large quantities of anodynes, opium in 23 or 24 grain doses, every 4 or 6 hours. Locally employ the most soothing measures, medicated fomentations with acetate of lead or Sal ammoniac & opium, & use warm applications instead of Cold. If there is great tension in the parts make use of punctures or incisions, to admit of a certain amount of drainage to prevent Suppuration & Mortification.

Make use of nitrate of Silver or tincture of Iodine. This disease occasionally assumes a chronic character. Those who suffer most from this poison have always their health more or less deranged at the time of the puncture. A poison is sometimes generated from the examination of horned animals after death who have died from murrain, & the disease is called malignant pustule & it proceeds from inoculation. Its impression is first made on the skin by the appearance of a pimple & afterwards there is a vesicle, & in a few days matter forms, followed by an eschar or a slough. The symptoms are similar to those produced by dissecting wounds & the treatment must be adopted on the same principle. You cut out the part as in Erysipelas & apply the actual cautery. Gun shot wounds comprise all injuries inflicted by the discharge of fire arms. Occasionally severe wounds are inflicted by shot. A ball may make one or more openings according to circumstances. Generally there is but one when the ball lodges in the part. The opening of entrance is comparatively small, the edges are depressed & inverted & the parts immediately around partly discoloured by the ball. In the opening where the ball escapes the perforation is larger & the parts have the appearance of having been lacerated. A



gun shot wound does not produce much pain unless it involves an important nerve & it is frequently attended with a loss of power in the limb below the wound. There is seldom much hemorrhage unless an artery has been divided, but secondary hemorrhage is apt to take place. The constitutional symptoms are sometimes violent. A ball is exceedingly liable to be detached out of its course & also to suffer some modification in the parts

XXI. In the treatment of Gun shot wounds, the 1<sup>st</sup> indication is to arrest the hemorrhage 2<sup>nd</sup> To remove any foreign substance whether consisting of the ball or other material 3<sup>rd</sup> To dilate the wound if necessary, 4<sup>th</sup> To moderate the resulting inflammation. Unless a large blood vessel has been opened the bleeding will be comparatively slight, as the parts are contused, lacerated or broken. When there is hemorrhage cut down upon the parts & ligate the artery; but this is not always practicable, & in such a case the rule is to cut down on the main trunk of the vessel some distance ~~below~~ above. To remove the foreign substance place the limb in the position it occupied at the moment of injury & next probe the wound. If the ball is not seated at any great depth & the opening is large enough use the finger, supporting the parts opposite the wound by the fingers of the

other hand, & then you may find the situation of the substance. If the  
 finger is not sufficient make use of proper instruments. A probe  
 should not be less than 10 or 12 inches long with which you can  
 pursue the track of the ball & find out where it is. If you have no  
 such instrument at hand, take a catheter or piece of whalebone.  
 To extract the ball you must use proper instruments. A polypus  
 forceps will remove a small ball seated superficially; but in  
 other cases the proper ball forceps becomes necessary, In grasping  
 the ball do not seize any of the surrounding structures. After  
 the extraction of the ball place the wound in the best position for  
 union by the first intention; keep the part at rest in an elevated  
 position & use antiphlogistic remedies. If violent inflammation arise  
 punctures & incisions may be necessary. The dressings should be of the  
 simplest kind, bringing the edges together by a compress & bandage.  
 If the ball carries with it some other foreign substance as a piece of  
 clothing, you must remove this foreign matter also for this is more  
 necessary than the removal of the ball. This object is frequently ac-  
 complished with great difficulty. Such foreign substances being often  
 divided into fragments & it may often therefore be necessary to dilate the



wound. If there be useless pieces of the wound as bone etc in the cavity, these must be removed also. Wounds of this kind often involve the necessity of amputation, which must be performed when required as soon as the accident has taken place. If Gangrene occur during your efforts to save the limb, you do not wait for the line of demarcation, but amputate the limb at the earliest opportunity, provided the patient's system is not too much debilitated. Taken wounds are inflicted by an Indian arrow, especially if it be poisoned, you must cut down upon the part at all hazards & treat the case upon general principles.

Heterologous formations are liable to occur in nearly all parts of the body. These tissues are of new formation, & bear no similitude in structure to the preexisting natural or normal tissues of the body, & are foreign to the economy in its normal state. They comprise Schirrus, Encephaloid, Colloid, melanoses, tubercles. They are of frequent occurrence & take place in almost all the organs & tissues of the body, but not in all places with equal frequency. They are not peculiar to the human subject. They are met with in both sexes, & occur at all periods of life, & in different varieties of form of which the tubercular is most common, in which the new matter is poured out in the form of a

little tumor; after this deposit goes on for some time they become subject to decay & disintegration, lose their vitality, & finally they are eliminated by the surrounding structures. They have the effect of contaminating the surrounding tissues, especially the surrounding lymphatic ganglia & the absorbent vessels with which they are connected. These deposits are composed essentially of cells of various shapes, mostly spheroid, circular or rounded, each one enclosing a central nucleus each nucleus containing a number of nucleolae. The cell is larger than a blood globule.

**XXII.** There is a sort of milky fluid of a whitish straw looking appearance which is peculiar to Cancerous formations, & intermixed with this is said to be the peculiar Cancerous cell. These formations are composed principally of albumen, with a little fibrine, some earthy salts & a little fatty matter. all these formations are supposed to be of Constitutional origin in almost every case; & when these are removed in any way they have a tendency to reappear, either at the wound made in the operation, in the neighborhood, or some other part more or less remote, & this is more particularly true in Scirrhus, Encephaloid & Melanosis. A Scirrhus tumor is exceedingly hard, & is usually, a small



tumors, more particularly liable to occur in the glandular organs.  
 The encephaloid tumor is composed of a brain like substance, which  
 usually acquires a very great bulk. Melanosis is a sort of black  
 cancer, & sometimes acquires considerable bulk. In the colloid form  
 the deposit takes place in cells, & resembles glue or jelly & is  
 exceedingly uncommon. The tubercular deposit takes place most frequent-  
 ly in the lungs, peritonaeum, bowels, lymphatic ganglions etc. It is de-  
 posited in the form of little tubercles very small in dimension.

Cancer of the breast commences in a sort of nodules & are about the  
 size of a pea; They may commence simultaneously in different parts of  
 the organ, & as they grow they form large tumors which are in the first  
 instance movable; but as the tumors become enlarged, united adhesions take  
 place in the surrounding structures, in consequence of an effusion of Coagu-  
 lating lymph, & the tumor becomes more or less firmly united, & in its  
 removal sometimes requires the dissection of some fibres of the pectoral  
 muscle. Such tumors grow slowly, several years often elapsing before  
 they attain any considerable bulk. In the first instance there is little or  
 no pain, the parts being scarcely conscious of its presence, As it increas-  
 es in bulk & spreads it compresses the nervous filaments & gives rise

to a peculiar kind of pain which is almost characteristic of this kind of formation, a sharp, shooting pain. It is liable to be aggravated by moist states of the atmosphere, & is generally worse in the night than in the day time. During the progress of the disease there is tendency in the surrounding parts to Contamination by an absorption of the raw deposit; & is conveyed along the lymphatic vessels to the neighboring structures, especially the lymphatic ganglions of the axilla. By & by after this has existed for some time it manifests a disposition to decay & disintegrate to ulcerate, & eliminate itself. An ulcer of this kind has usually very steep, abrupt, jagged edges, the surrounding parts being in a state of ulceration & discoloration, & very little the bottom has some plastic lymph & the discharge is thin, irritating the surrounding structures, loaded with saline matter, containing more or less sulphuretted hydrogen; & it is always intractable never presenting any laudable granulations & it never heals. As this affection progresses, the constitution becomes seriously involved, the patient becoming emaciated, the muscles flabby & soft & shrunken, the bones of the skeleton become softened frequently giving way on the slightest pressure; the appetite becomes impaired, the blood impoverished



lessened in red & white globules, the fibrin is diminished & the Countenance assumes a sallow Cadaverous aspect. The patient thus affected will live according to the progress of the disease, in some Cases the disease being comparatively latent, & in the majority of Cases terminating fatally in from 2<sup>1</sup>/<sub>2</sub> to 4 years. This disease is liable to occur in various other organs of the body, as in the uterus, liver, lip &c; rarely in the bones, Cartilages, tendons, fibres & muscles, nor in the brain & heart; seldom in the spleen, kidney, & prostate gland; mostly taking the glandular structures of the body. The tumors thus deposited are seldom surrounded with a distinct Capsule & when it does exist, it extends into the interior of the tumor dividing into different compartments. The matter is provided with blood vessels & probably with nerves and absorbents. The blood vessels are comparatively small, & the resulting bleed is not liable to bleed much unless an artery or vein of considerable size is laid open by the process of ulceration. When the disease occurs under favorable circumstances an operation is perfectly justifiable; but when the reverse is the Case, no interference should be made in this manner. The favorable circumstances are when the disease is confined to one particular organ; is of comparatively small size, the youth of the tumor; also its mobility; when there is no Contamination

of the surrounding lymphatic ganglions; the absence of Contamination on the part of the Constitution. If the reverse of these circumstances present themselves, the use of the knife will only act as a palliative. In such a case, if an operation be performed, the disease will return usually at the end of a few months. When the knife cannot be used, keep the general health, as near as possible, to the natural standard; & where the system is exhausted, administer tonics, with nutritious food, & nutritious drinks; allay the pain by anodynes. After ulceration has taken place use emollient poultices, & the chlorides to destroy the fæta. There are no specifics to erase or cure any kind of Cancerous affections.

**XXXII** Scirrhus seldom occurs in any organ until after the 30<sup>th</sup> year of age. The disease is occasionally hereditary, & it occasionally occurs in different members of the same family. When hereditary it seems to contraindicate the propriety of an operation. In performing an operation the utmost care must be taken, in dissection, that all the diseased structure must be removed, not only the tumor, but a portion of the surrounding healthy structures should always be removed, not sparingly but with a liberal hand, & after the main mass has been



removed, trace out any elongations of morbid structure & get rid entirely of the diseased mass & any processes connected with it. Prevent the loss of blood as much as possible, for the greater the loss of blood, the greater is the liability to the return of the morbid growth; tie & compress the vessels as soon as they are divided. Save as much skin & subcutaneous cellular substance as possible, if the skin is impoverished by the removal of the cellular tissue, the parts will not coalesce & there will be greater tendency to regeneration of the morbid substance. Save as much integument as will cover the whole of the wound if possible; & if this cannot be done slide the skin from some of the surrounding parts over the gap & completely close it, for when this is done there is less danger of regeneration. Pay particular attention to the state of the system after the excision has been effected; regular diet, following it by constant attention to the bowels & secretions; use exercise, & those things which will keep the general health as near as possible to the natural standard.

Encephaloid disease, is called medullary sarcoma, soft cancer, & many other names, but the term encephaloid is the best for it. This is of more frequent occurrence than Schirrus, occurring frequently in different organs at the same time & is more commonly observed in

young subjects. It most commonly selects the glandular structures & frequently occurs in connection with the bones & fibrous membranes as well as various cellular tissues. This form differs much from sarcoma in its forms. 1<sup>st</sup> - It possesses always a much larger quantity of loose cellular matter than sarcoma. 2<sup>nd</sup> - It contains a much larger number of blood vessels, which are frequently quite voluminous (respecting both arteries & veins, which are often very convoluted & their walls are very brittle, so that such tumors are exceedingly prone to bleed in every case, & therefore such tumors often contain in them clots of blood. These tumors possess nerves & absorbents & are therefore highly organized. These tumors frequently have a distinct capsule either of new formation or derived from the surrounding cellular substance in a state of condensation. This capsule sends processes into the interior of the mass; which as they extend from the surface of the tumor into the interior carry along blood vessels, nerves, & absorbents. These tumors acquire an immense size owing to their great vascularity, & they grow with immense rapidity. These tumors consist of a brain-like substance having likewise the cancer cells, the tail like variety of the cancer cell. It is most frequent between the ages of 20 & 50. In encephaloid tumors there is comparatively little or no pain until after the process



of ulceration has taken place. There is usually an enlargement of the subcutaneous veins which are sometimes as large as a quill on the little finger, & sometimes the blood becomes almost stagnant in them. In ulceration the fungus protruding is always the seat of hemorrhage, by the repetition of which the patient's system becomes exhausted. In cases of doubt as to the nature of the tumor, you must make a careful exploration of the parts. Generally employ a Cataract needle, so that if the tumor contains a fluid, the puncture will enable the fluid to drain off, so as to determine the nature of the disease, & it does not disturb the relation of the contents of a tumor of this kind, as much as a larger instrument. This tumor is eminently malignant in its character under all circumstances, & is a disease of the Constitution; if removed from one part of the body it will reappear in another portion. An operation should seldom be performed, but if the disease appears in an extremity remove the part as soon as possible, if it occur on the trunk let it alone. The Colloid is a gelatinous Cancer. It is not as frequent as scirrhus or encephaloid, being exceedingly rare. It is most frequently met with in the peritoneum, especially in connection with the mesentery, in the mammary gland, testicle, ovary, sometimes in the liver, & occasionally in the subcutaneous cellular substance in different parts

of the body. It is slow in its progress, & rarely runs than one part of the body suffers. On examination it is made up essentially of fibrous matter which is arranged so as to form large Cavities, as well as cells, for the accommodation of the peculiar gelatinous Substance it contains. These Cavities may connect with each other. The fibrous matter is organized receiving a large number of blood vessels, & perhaps also nerves & ducts. The gelatinous Substance is perfectly destitute of organization. This Substance is malignant in its character, & always destroys life sooner or later.

**XXIV.** Sometimes encephaloid Cancers have a great tendency to bleed, & these are called fungus haematodes, which are very rapid in growth, & when they ulcerate are often attended with fatal hemorrhage. Melanosis is met in different organs of the body, & it is most common in the cellular & adipose tissues & in the lymphatic ganglions especially those of the groin & axilla as well as in the mesentery, & occasionally there exists a melanotic diathesis, a sort of general prevalence of this deposit. This is likewise observed in many inferior animals, as the horse, ox, dog, cat, & bird. This arises in the form of tumors, infiltration, layers, lamella



& in the form of little points. The most Common form is the tubercled variety. This disease is essentially malignant in its character, & when removed is always liable to reappear, & that Commonly in a very short time. Tumors of this kind contain a sort of Capsule which may be of new formation or derived from the condensation of the surrounding cellular substance. The color is usually black, & it may also be of a brownish or gray complexion, Sometimes almost whitish. This appearance is owing to a peculiar pigment, which stains linen or white paper which can readily be removed from it. It is without smell & without taste. It consists of cells & granules which are free & of a rounded shape, Sometimes exceedingly irregular. It varies in its consistency in different parts of the body & under different circumstances from the fluidity of ink up to that of firm cartilage. The cells in which the matter is contained are organized, but the black substance itself is unorganizable, & is incapable of producing the process of absorption. After having existed for some time it manifests a disposition to decay & disintegration, but the period is indefinite. When the ulceration takes place an intractable sore is the result, which ulceration has a thin

unhealthy discharge having frequently some melanotic substance.  
 The treatment consists in Excision provided there is reason to believe  
 the disease is circumscribed in its character; but when it occurs in  
 various parts of the body, especially in some internal organs. Excision  
 will be of no avail. The Cancroid formations differ some-  
 what from the Cancerous formations & present some points in con-  
 nection with them. These Cancroid formations occur chiefly upon  
 the mucocutaneous surfaces & are most frequently observed upon  
 the lip, tongue, penis, uterus, & rectum; also upon the scrotum,  
 various parts of the face & other portions of the cutaneous surface.  
 They are occasionally met with in the stomach & interior of the bowels.  
 These affections do not possess the cancer cell or the cancer juice.  
 They are composed essentially of epithelial cells & they are more  
 closely packed together than those of the skin & mucous membranes  
 & have the appearance of concentric globes; & after these have  
 made some progress as in the lower lip we find not unfrequently  
 the true cancer cell & even the cancer juice. Another pecu-  
 -liarity is their situation usually at the junction of the cutan-  
 -eous & mucous surfaces. These tumors do not have the same



Contaminating tendency either on the parts or the system at large, & when they are excited they are not so liable to return. These usually begin in the form of a little tubercle shot-like in its shape & Consistence, first moveable, but afterwards growing large & attached to the surrounding structures, & having a tendency to ulcerate. Sometimes they begin in little grooves or fissures, a little sore in the first instance; the edges afterwards become indurated & the disease progresses until a large amount of tissue has become involved. These tumors usually resist treatment, the same as the true Cancerous formations, as far as local applications & internal remedies are concerned; & the only thing to be done is by excision which should be performed at as early a period as possible removing with the deposit, some of the surrounding healthy substance. Where the disease is of large extent, if there is no inflammation of the surrounding structures an operation should be performed; & in the lower lip sometimes even when the gums, jaw, & teeth have become invaded. The last of the heterologous formations is the tubercular. The tubercular, scrofulous, or strumous disease has usually been excluded from the class

of malignant diseases; but this is a malignant disease more so than any other histological formation Cancerous or otherwise.

In internal parts of the body it is eminently malignant; but in the external parts of the body it is often amenable to our remedies. It may be presented in various forms, the most common is the tubercular, like little masses from the size of a milllet seed, to that of a cherry. It occurs in the form of a large, also in the form of an infiltration; & also in the encysted form, where the matter is enclosed in a layer of lymph which becomes organized.

It is much frequently met with in the lungs, & especially in the summits of the lungs in adults. It also occurs quite often in the lymphatic ganglions; it is very common in the spleen & serous membranes, especially the peritoneum & in the arachnoid membrane, rarely in the brain, occasionally in the liver, even in the kidneys in the short bones, & the articular extremities of the long bones. It is met with in other parts of the body.

It may exist at the same time in different parts of the body. The substance is composed essentially of albumen & consists of cells & granules, not in as high a state of organization as in



Schirrus & Encephaloid. The substance contains a considerable amount of fatty matter. We do not know the origin of these formations. There may be a predisposition to this morbid action. After it has existed for some time it manifests a disposition to become extended, either in the middle of the matter or at the circumference, or simultaneously at both points. This substance is frequently highly organised, but in certain parts of the body it is not organizable.

Persons labouring under this deposit, from predisposition, especially when excessive; have a peculiar delicate skin, light complexion & light hair, the skin being eminently soft, the eyelashes are long & dark, the pupils seem to be too widely dilated. These individuals are subject to cutaneous eruptions, liable to discharges from the ears & ulceration of the ear; They usually have tumid lips & tumid belly, & frequently enlargement of the mesenteric ganglions; they are badly troubled with coldness of the extremities; & from the influence of cold the digestive organs are liable to constant derangement. They are liable to enlargement of the tonsils.

**XXV.** The term scrofula was formerly limited to certain glandular enlargements especially of those in the neck, but

is now applied to similar affections in other situations; as in the hip joint in what is called *Coxalgia*, & in the knee joint. in what is termed *white swelling*, in both disease, in chronic & other abscesses, & in certain affections of the internal surfaces, in the bones, & in certain affections of the eye & eyelids. When the disease occurs in the internal parts of the body they come under the observation of the physician, as in pulmonary Consumption, & in aneurism, & in the liver, spleen, & kidneys. Tubercular and scrofulous diseases are essentially & precisely the same in all their bearings; but there are some enlargements of the lymphatic ganglions of the neck arising from certain causes, which are not scrofulous, & which yield to general antiphlogistic remedies. A tubercular deposit may be absorbed, or be substituted by earthy or calcareous substances, & the part get entirely well, but this is very infrequently. In tubercularization of the lungs the patient generally dies in from 9 to 12 months, but there are exceptions to this rule. In simple enlargement from the pouring out of coagulating lymph, you give internal alterants, with proper diet &c.; & local applications such as Sordapain. There are two classes of strumous patients. In one



there is usually pallor of the countenance, tumid upper lip, dilated pupil, long eyelashes, coldness of the belly & extremities &c. In the other class the complexion is frequently ruddy, the capillary circulation is exceedingly rapid, & the patient has frequently a large quantity of adipose matter. In the first class the treatment must be by tonics & alterants. In the second class you use depleting remedies & bleeding. In the first Case the best remedies are the digestions preparations of iodine, premising attention to the patient's diet, bowels, & secretions. The diet should be partly farinaceous, and partly animal, plain & simple; such things as stale bread, no fresh bread, short cake, or hot biscuits; give mealy & sweet potatoes properly prepared &c, mush, baked apples, occasionally a little fresh fish; no pastry, no coffee, no strong tea; but weak tea, milk, & sometimes a little wine, or a little brandy, or good whiskey; or instead of these porter, or ale, & sometimes beer. Build up the system & improve the condition of the blood; & then begin with the preparations of iodine. Give Lugol's solution, 20 grains of Iodine & Iodide of Potassium gr<sup>ss</sup> to the ounce of water; & give of this from 5 to 10 <sup>drops</sup> ~~grains~~ 3 or 4 times in the 24 hours; or

instead of this the iodide of potassium alone; or the iodide of iron; where a tonic is at the same time required, the latter is a powerful alterative & tonic; give it in a little pill or in the official solution, & when in solution let it be largely diluted, or in a mild anodyne or strong hot tea. Where there is great pallor with coldness of the extremities & difficulty in keeping the patient warm, give iodine in combination with the Sulphate of iron, or combine the quinine with the iodide of iron; or Sulphate of iron in combination with the preparations of Cinchona. There are some other alterants as barium, or the muriate of barytes, which is very powerful in the treatment of these diseases. These should always be given with a great deal of care & in the smallest doses; take the solution of the muriate of barytes & begin with 5 or 6 drops 3 times in the 24 hours. & increase the quantity according to the tolerance of the stomach until you may give it in doses of 15 or 20 & even 30 drops three times a day. It may be given in a little morphine. If it produce bad effects diminish the quantity or withhold it altogether for a time; carefully watch the effects of the article, & when it has been given for 10 or 12 days, omit it for a few days, to give the stomach and



system a little respite. Another article is the bromide of potassium which may be given in pills, or in solution, in doses from 3 to 10 grains twice in the 24 hours. It is a powerful attractant & a powerful promoter of absorption. There is also the iodide of potassium.

Occasionally we find all these remedies however carefully administered, fail in producing the desired result. When this is the case omit them & substitute some mercurial preparations. The bichloride of mercury in combination with Sassaaparilla as in Swain's panacea. When you use mercury employ the bichloride, but when its use is contra-indicated, make use of the blue mass, or the grey powder (mercury & chalk), or minute doses of calomel. Mercury should not be given in large quantities in three cases; Say  $\frac{1}{16}$  or  $\frac{1}{32}$  grain of the bichloride of mercury,  $\frac{1}{2}$  or  $\frac{1}{4}$  grain of the blue mass, or 2 or 3 grains of the grey powder, etc.; being careful not to salivate the patient. Another article to be advantageously used is Cod liver oil; of this, if a small child, give a teaspoonful twice in the 24 hours; or if an adult give a tablespoonful, or from half an ounce to an ounce; taking care after a few days to omit it for awhile. Give it in port, or a little brandy, or some wine

& get as pure an article as possible. Do not neglect exercise in the open  
 air, change of air, & of residence if possible. Pay attention to the  
 cutaneous surface, employ frequent ablutions followed by dry applica-  
 tions, & aspirations. In the other class of patients the treatment  
 should be of an antiphlogistic character. If the patient is robust,  
 you deplete him, sometimes taking blood from the arm; purge  
 him, give him tartar emetic & ~~ipocacuanha~~ sulphate of magnesia  
 &c. Give  $\frac{1}{4}$ ,  $\frac{1}{6}$ , or  $\frac{1}{8}$  grain of tartar emetic with a drachm of  
 epsom salts at least 4 times in the 24 hours. The tartar emetic  
 diminishes the circulation & is a powerful sorbent, & the epsom  
 salts & sulphate of magnesia keep the bowels in a soluble condition.  
 Reduce the patient's diet; give no animal food, & lessen the quantity  
 of farinaceous articles; but do not carry this treatment too far.  
 In the first class of patients for local remedies make use of  
 ointments, liniments, embrocations, or plaisters; make use of the  
 ointment of iodine, or iodide of potassium, or combine them; or  
 use an ointment composed of the iodide of lead; or a liniment  
 composed of soap liniment, combined with a certain amount of  
 the tincture of iodine; or equal parts of iodine & alcohol, washing



over the parts twice in the 24 hours; or some antiseptic plaster as the ammoniacal & mercurial plaster. When suppuration takes place do not wait until large quantities of matter have been accumulated, but make an early & free incision, to give vent to the effused fluid; & treat the parts the same as when they are in a state of suppuration from the effects of inflammation arising from ordinary causes; & when ulceration has taken place you proceed in a peculiar manner. The edges of such ulcers undermost, looking & feeling like a mass of cheese; the edges are livid & the discharge is unhealthy as well as the granulations. You use certain applications to arrest the action of the parts; adhesive inflammation cannot be accomplished & you get rid of the substance by the Knife, or the Virgula fracta, or Caustic potash, or some acid, as the acid nitrate of mercury, & thus remove the <sup>dis</sup>integrated structure, that the parts may be placed in a good position for reparation. In the second class of cases where there is an overaction, leeches frequently prove very beneficial in some peculiar cases.

When Carcinomatous diseases exist in the lower lip, we are often called upon to perform operations, & the parts generally

unite by the granulating process. Sometimes the gap is too large & will not mesh, & thus annoy the patient; when this is the case you make a new lip by carrying the incision from the angle of the mouth to the chin or beneath it & then push up these flaps uniting them in the median line by the twisted or interrupted suture.

**XXVI.** We occasionally find a little tumor upon the inner surface of the lip, generally the lower lip situated immediately beneath the mucous membrane, consisting of the enlargement between the mucous follicles in that situation. This varies in its dimensions from the size of a millet seed, to that of a hazel nut. It is usually translucent in its appearance, soft & compressible, free from pain, & free from malignancy, composed of a distinct sac consisting of the hypertrophied wall of a mucous follicle, & of a mucilaginous fluid, evidently altered mucus. Its progress is slow & the tumor never acquires a large bulk. The treatment consists in making a free incision into the tumor, & touching the cyst with some caustic substance, to create inflammation, & cause obliteration of the sac. Or you may take out the sac by a careful operation, lay open the tumor, let out its contents, then seize hold of the



wall of the sac, & dissect it out carefully. We occasionally  
 find ulcers upon the lip which may be of a simple character or  
 specific. They may be occasioned by a chancre from the influence  
 of Syphilitic poison & require no particular treatment. The lips,  
 especially the upper lip, are liable to Strumous enlargement where  
 there is nothing like a tubercular enlargement; but there is fre-  
 quently a Strumous diathesis & a sort of explosion of disease upon  
 the lip in all its constituents, so that the lip becomes indurated &  
 greatly increased in bulk. When it exists in a great degree, there  
 is apt to be a varicose condition of the subcutaneous veins: the  
 lip has a bad appearance, is dense hard & resisting. This is most  
 common in persons predisposed to Scrofulous effects in other parts  
 of the body, & is most common in young subjects. It is usually  
 amenable to the ordinary remedies employed for correcting Scrofulous  
 diseases in other parts of the body. It is the Strumous or Scrofulous  
 lip. You may be obliged to apply a leech or the tincture of iodine  
 properly diluted. The after treatment is upon general principles,  
 especially using the iodide of iron. Sometimes we make use of  
 punctures to admit of drainage & stimulate the absorbents,

but this is usually unnecessary. We occasionally meet with an hypertrophied Condition of the mucous membrane of the upper lip giving that membrane the appearance of being double. It is particularly conspicuous when the patient laughs. This is essentially dependant upon a great supply of mucous membrane & subcutaneous surface. The remedy consists in taking out the useless part of the mucous membrane, by turning out the lip, holding it against the nose, & cutting out an elliptical portion, making two incisions; but do not cut out too much or the lip may become inverted. After having made this incision, tack the edges together, by means of several points of the interrupted suture. Hare-lip is confined exclusively to the upper lip & is so called because the fissure resembles that in the lip of the hare, though it is always situated on the outside of the median line. It seems to occur more frequently on the left than on the right side. It is a congenital malformation & presents many varieties. It may be single or double, simple or complicated. There may be merely a fissure in the lip, or it may exist likewise in the jaw bone, extending as far



buccas, & often injuring the soft palate. In double hare lip  
 there is an intermediate portion corresponding to the intermaxillary  
 bones of the embryo. The fissure is usually somewhat V shaped  
 in its form, the apex corresponding to the exterior. It may involve  
 a slight portion of the lip, or extend up as high as the nostril, &  
 even into the nose. The edges are always of a reddish appearance,  
 from being lined by a mucous membrane. When this exists in a  
 considerable degree, it interferes with suction & articulation, retent-  
 ion of the food & saliva. It is exceedingly unsightly. In a simple  
 case the operation is equally simple. It consists in raising  
 the edges properly, bringing them in contact, & maintaining them  
 in their position by means of the twisted or interrupted suture;  
 when inflammation takes place, coagulating lymph is poured out,  
 & union is effected. The operation is not attended with much  
 blood or much pain; but if necessary ether or chloroform may be  
 given. In performing this operation especially when the fissure  
 extends to the nostril, detach the lip from its connection with  
 the jaw bone & the gums, by a sharp scalpel, frequently carrying  
 the instrument as high as the nostril. The external margin of

the incision in all cases is more oblique than the internal. To prevent the formation of a notch or triangular slit, when paring the edges give them a little convexity in a sort of semi-circular direction, commencing above & cutting downwards. If the patient be an adult, let him sit in a chair, or lie down with his head & shoulders properly propped up. If a young child tie up the limbs in a sheet, attempting to convert the body into a complete cylinder, & secure all the extremities; let the child sit in an assistant's lap with the head & shoulders elevated; let an assistant stand behind the chair & hold the child's head so as to render it immovable, & let another assistant hold the legs. The Surgeon sits in front & performs the operation. The instrument should have a long narrow blade & be sharp pointed, The edges may be pared with a pair of scissors if preferred. Always pare the lips freely. After the cuts have been made & the sutures are to be applied, place the larger needle at the bottom of the vulva compressing with it the labial artery. The thickness of the lip should be  $\frac{2}{3}$  in front &  $\frac{1}{3}$  behind the suture. Then place a smaller needle above the other, & wrap



an elliptical ligature around each. Afterward if necessary introduce a 3<sup>d</sup> Suture, The third needle is generally placed just below the ventral. Take a point of the interrupted Suture at the end of the prolabium to prevent a gap taking up a portion of the mucous membrane. Set the end of the ligatures afterward Crost from one needle to the other. Then push on the needles as far as their heads will permit, & then cut off the points of the needles, having first tied the extremities of the ligatures in a double knot. The patient is treated antiphlogistically, & in 3 or 48 hours the upper needle or needles may be removed, about 12 hours afterward the middle one, & at the end of 3 days at farthest remove the lowest needle. If the needles remain in too long, the parts may ulcerate around them & produce disfiguring sores. After the removal of the needles the thread must remain undisturbed, & they will glue themselves to the surface of the lips & serve the purpose of adhesive plaster. They usually drop off in the course of 8 or 8 days. If the patient be a child, especially if a young one it will take the breast shortly after the operation, & if it will not do so it must be fed in the ordinary manner. Sometimes there is a fissure in the jaw bone, & then the operation should be performed

at as early a period as possible when the gap will gradually disappear but if it is left for several years it will not fill up completely. Another form is the double harelip, in which a fissure exists on each side of the middle line some distance from it.

Sometimes the intermediate part extends to the bottom of the rim of the lip, but generally it is a mere knot. It is apt also to be distorted, & may deviate from the vertical position. When the knot is vertical, & extends down upon a level with the prolabrum it may be allowed to remain taking care to pare its edges the same as the other edges & connect them together by means of the twisted suture. The operation should be performed on but one side at a time, waiting 10 or 12 days before operating on the other side; especially upon young subjects, & where you cannot give ether or chloroform. When the knot projects out from the vertical position, endeavor as a preliminary step to push it back, but this cannot always be done. An apparatus like a truss has been made, so as to make pressure in front of a pad & direct against the occipital bone behind. Sometimes we may succeed by fracturing this piece of bone near its attach-



ment to the Vomer; or you may Cut out a portion. Where this operation fails cut this portion off with the bone nippers, or by means of a Saw, & then proceed as in the case of Single Harelip. The operation is generally accompanied with hemorrhage from the dental arteries, & this must be arrested. Generally after the operation, wait a week or a fortnight before you pass the edges to effect union or approximation.

Affections of the tongue. There may be in the first instance wounds of an incised or lacerated character, but they are infrequently. Incised wounds are liable to bleed from the division of the lingual arteries, which may often destroy life; the rule then is to draw out the artery & apply the ligature, & effect apposition by means of the interrupted or twisted Suture. Keep the parts at rest, preventing the patient from talking & Swallowing. Sometimes the frenum of the tongue is unusually short, dense, & resisting, preventing the extremity of the tongue from executing its proper movements. To effect relief hold the child between the knees nearly horizontally. Take hold of the tongue with the index & middle fingers; use a pair of Sharp pointed Scissors, & lifting up the tongue; apply the Scissors to the frenum, & cut from before backwards, & from above downwards.

Inflammation of the tongue is generally met with as the result of salivation, or as a second Syphilitic virus. When matter forms let it out by a free & early incision, at several points of its extent, not interfering with the lingual arteries, & also where there is tumefaction without the formation of any matter. Hypertrophy of the tongue is generally Congenital & is Sometimes acquired. It is usually seen in young subjects. The tongue projects far beyond the lips, & the greatest change it experiences is limited to that portion which protrudes beyond the mouth. Sometimes it protrudes as much as 4 inches being several inches in breadth & thickness. It is very hard, dense & resisting, of a brownish or blackish complexion; there is great enlargement of the lenticular papillae. We can arrest the progress by local remedies & internal treatment. Locally by iodine or a few leeches & occasionally a puncture. Give internally the preparations of iodine either alone or in combination with the iodide of potassium, or barytes; or the bromide of potassium. When these remedies fail then a Surgical operation becomes necessary.

**XXVII.** The most proper age for performing the operation of



lance is about the end of the 3<sup>rd</sup>, 4<sup>th</sup>, & 5<sup>th</sup> months; though operations may be performed at an earlier age, if the child is fully developed, strong & robust: When the tongue is hypertrophied, it increases in all its dimensions, & projecting from the mouth, evicts the lower lip, & also displaces the incisor teeth. When the affection takes place in early life, the development of the jaw bone becomes arrested & the coronoid processes are stunted in their growth.

The protruding portion of the tongue may be several inches in size, & the mouth being habitually open, the saliva is always dripping away. The treatment is not very satisfactory. When it is of long standing & the tumor is black, an operation is necessary. To perform this, draw out the tongue as far as possible; excise all that portion which is in a state of hypertrophy, which can be done by cutting from the posterior portion of the mass a sort of wedge shape. That there may be no difficulty when the edges are approximated; the portion cut should turn the apex looking backwards & the base corresponding to the morbid mass excised. Ligate any vessels which may smite blood. Effect the approximation by several points of the interrupted suture,

Cancer may occur in the tongue, & is usually of the same character as that which occurs in the lip. The most common situation is on the centre of the dorsal portion & usually towards the edge of the tongue, though it may reach the median line of the tongue. It is most common in advanced life, arising without any sensible cause, & it may begin in a tubercle, or fissure or excavation. It proceeds like similar cancers in other parts of the body. The gums, teeth, lower jaw, & the lymphatic ganglions along the base of the jaw finally become involved. In the latter stages the tongue becomes almost entirely immovable. When it has made but little progress, endeavor to relieve the part by free incision, & when this is impracticable try to effect its removal by strangulation with a ligature. You meet hemorrhage by ligation, Caustic, or styptics. To remove it by ligation, take a curved needle several inches long, armed with a double ligature, which is passed by the side of the tumor; pass the instrument from below upwards & then depict the ligature. Remove the needle & leave one ligature in front & one behind the morbid mass. Draw the ligatures as



firmly as possible. If the parts are not indurated notch them  
 slightly, & Sloughing will take place in the course of 4 or 5 days. Of  
 course there will be no hemorrhage. Ulcers of a Syphilitic  
 character may occur, especially along the sides & posterior part, & is  
 usually the result of secondary or tertiary form of Syphilis; & these  
 are generally, Syphilitic ulcers on other parts of the body. Such ulcers  
 should be treated locally with the acid nitrate of mercury, dilute  
 nitrate of Silver, or some slightly escharotic substance. Make use  
 also of the proper constitutional remedies, the iodide of potassium,  
 tartaric of mercury & such remedies. The Uvula is liable  
 to various diseases, inflammation & its consequences. Malignant  
 ulcers are very unfrequent. The inflammation may exist alone  
 or with inflammation in the arches of the palate, tonsils, & sometimes  
 in the tongue & fauces. This is liable to give rise to an effusion of  
 serum & plastic matter. This renders the part very pendulous & increases  
 its dimensions & even interferes with respiration. Ordinary inflammation  
 must be treated by ordinary remedies. When there is an edematous  
 condition the proper applications are a solution of nitrate of Silver, or a  
 weak solution of tincture of iodine, one of the iodine to 20 or 3 of <sup>alcohol</sup> ~~water~~.

applied by means of a ~~magma~~ the adjacent vessels are stimulated, & the fluid is thus drawn off. In other Cases you should make at once free incisions in the uvula. Sometimes you may clip off a little of the free extremity of the uvula. Occasionally the uvula is permanently enlarged, usually the result of frequent attacks of chronic inflammation. It is much larger than usual, projecting downwards in the throat, & gives rise to a tickling & Sometimes a Spasmodic or Suffocating Cough. This Cough is frequently uncontrolled when the uvula is elongated. Comparatively recently & is not very large, you may get rid of it by local applications; but the best plan is to seize hold with a pair of forceps, & clip up a portion with a pair of Scissors. The operation is without pain & without hemorrhage.

Never cut off the whole elongated uvula but usually 1/3 or 1/2. In a few days the parts cicatrize & are perfectly well. The tonsils situated between the arches of the palate, composed of groups of follicles, are liable to inflammation & also to some heterologous formations. They are exceedingly prone to inflammation which may be dependant upon a stormy state of the system. Persons are prone to inflammation of the tonsils from exposure to the cold, or an onset



of the catarrhus perspiration, & during the progress of an eruptive fever especially when severe. It may occur at any period of life, but is more common to young subjects. It is characterized by great discoloration of the part, by pain, heat, swelling & disordered function. There is a feeling of stuffiness in the throat. In the early stage the discoloration is darkish, afterward it becomes purple, livid, or indurated, especially when an abscess is likely to form & there is a threat of mortification. The patient has always a desire to clear the throat. The treatment is antiphlogistic. If the patient is robust & vigorous, bleed at the arm; purge him freely, & put him upon the antimonial & saline mixtures; give a brisk cathartic, use the foot bath; & apply a mustard poultice to the neck, or the application of the cold towel; & in this way you formen the parts. In some cases you derive benefit from the application of leeches. The patient will not eat or drink much, in account of the difficulty in deglutition. Sometimes a large emollient poultice will be of advantage; where there is much viscid secretion & difficulty of breathing, give an emetic to effect clearance, & unobstructing the secretions, determine to the skin. As far as gargles are concerned, the mildest are the better, as a little tepid water, vinegar, or a little

warm water & a small quantity of hypochlorous acid; or make use of some mild astringent wash. If a child make the application directly to the part by means of a mop. There are frequently little globules of lymph, making the tonsils look as if they were in a state of ulceration. If the inflammation proceeds slowly, apply the nitrate of silver in solution or substance, or the tincture of iodine.

Place the patient on a chair, & hold the head, depress the tongue by means of the proper instrument or the handle of a Spoon properly warmed. Request the patient to take in a long inspiration & then make the application: if the solution of the nitrate of silver, use a mop, which should be made of a soft piece of sponge attached to a piece of stiff whalebone; plunge the sponge carefully in the solution, give it a motion to get rid of the water & redundant fluid, & then, having the tongue depressed, pass the mop down & put it in contact with the affected surface, & touch it in every portion of its extent, touching all the surrounding parts thoroughly & as rapidly as possible, & repeat this application once every 12 or 24 hours according to the circumstances of the case, but it must not be applied too often. The solution should



be from 20 to 30 or 40 grains to the ounce. For a child 15 grains are sometimes sufficient. It should seldom be over 60 grains. When the nitrate of Silver is used in substance; put part in the end of a quill & apply it rapidly & lightly at different points of the affected surface. The tincture of iodine should never be applied in its pure state, as it may add to the inflammation. Should an abscess form, let out the matter, giving an early & free passage. In an operation you must be careful not to open the Carotid artery. The patient must be in a proper position, properly held, & the knife must be inserted in the proper direction. Have the head firmly held, the mouth widely open, & carry the instrument down into the tumor formed by the accumulating fluid. The point of the knife may be carefully guarded. Bring the edge of the knife up towards the roof of the mouth & make the incision as large as may be necessary. Chronic enlargement of the tonsils is sometimes met with. This is most common in young persons, before & soon after the age of puberty, those of a stumorous, tubercular, & Scrofulous habit of body. The tonsils become enormously enlarged. The patient has difficulty in respiration,

& articulation, & even in deglutition, & he is frequently troubled  
 with a cough, & at night sleeps loudly with the mouth wide  
 open. The chest becomes flattened in front & convex behind.  
 Such patients are exceedingly prone to take cold. These cases  
 require local & Constitutional remedies. Locally apply Erythro-  
 form remedies; touch the part every 3 or 4 days with a solution of  
 nitrate of silver or tincture of iodine. Introduce the finger  
 twice or thrice a day & make a little pressure upon the parts  
 to stimulate the absorbent vessels. Also occasionally apply  
 at the angle of the jaw, a few leeches. Sometimes advantage may  
 be derived from the use of punctures, say 6 or 8 to be repeated oc-  
 casionally. Sometimes it requires the excision of a portion of  
 the tonsils, slicing off a portion of the part which projects  
 beyond the arches of the palate. The operation is simple in an  
 adult if the patient cooperates with the Surgeon; but it is a very  
 embarrassing operation in the child. If the patient be a child of  
 3 or 4, or 6 or 7 years of age, administer if practicable either  
 chloroform; or wrap him up the same as in the operation  
 for hairlip. Take hold of the tonsil & remove the offending portion.



There have been peculiar instruments constructed for this purpose. The best plan is to seize hold of the tonsils with a tenaculum, draw it out & effect the excision by means of a bistoury slightly probe pointed. The head being at rest, the Surgeon in front of the patient, apply the knife with the back towards the tongue, & cut from below upwards, & from without inwards, from the base of the tongue towards the uvula in a sort of Sawing motion. This operation is usually accompanied with considerable hemorrhage sometimes to the amount of 20 ℥, which must be arrested in the usual way; by Caustics, alum, hot needle; Compression &c.

**XXVIII** The Fauces are subject to inflammation either ordinary or specific. Occasionally there is here an abscess called a pharyngeal abscess which forms beneath the mucous membrane in close contact with the wall, & in close proximity to the cervical vertebra & inter vertebral cartilage. It is usually the consequence of Intercular disease, & sometimes of the Syphilitic virus. When it exists from ordinary inflammation it is rapid in its formation. In the other case it is of slow formation & the matter is of the

peculiar stumorous character. Great difficulty of respiration is one of the symptoms of this disease; especially when it is a phlegminous abscess, there is difficulty in deglutition & articulation. To diagnosticate such cases the parts must be properly inspected. Such an abscess should not be allowed to evacuate itself spontaneously; but an incision should be made, without any fear of inflicting injury on any of the surrounding parts. Puncture the abscess with a bistoury properly guarded, or a small trochar. Foreign bodies occasionally lodge upon the tonsils, or between the arches of the palate, or upon the root of the tongue, in the fauces, pharynx, & oesophagus; & they are of various kinds, bones, pins, needles, tacks, Coin, food &c. &c. Whatever the foreign substance may be, it is always productive of inconvenience, & if it remain it will develop more or less inflammation. The first thing necessary to determine the nature of the foreign substance. When found it must be removed, by appropriate forceps, polypus, or pharyngeal, according to circumstances. Sometimes pieces of Coin lodged here, Cannot be ejected, or propelled downward by



the patient; & if it cannot be removed by forceps or otherwise, endeavor to push it into the Stomach. Pieces of food which cannot be removed must be pushed downwards into the Stomach by means of a probe properly mounted with Sponge or ivory.

The Oesophagus & pharynx are liable to inflammation, paralysis, & stricture. Paralysis of the pharynx or oesophagus, is usually dependant upon disease of the spine, or disease of the spinal cord; & sometimes from more derangement of the digestive apparatus. The patient may be unable to swallow, & may be liable to perish from inanition. Treat the case according to the indications and upon general principles. Remove the disease upon which the paralysis depends & then the paralysis itself will be removed. Administer if necessary tonics; use blisters, galvanism, strichnyne &c. The patient must be nourished, either by means of the stomach tube, or nutritious enemata, as strong beef tea, or mutton broth; & inject four ounces into the rectum but not more otherwise there may be a reaction & it will return. Medicines may be administered in this way.

Organic Stricture of the oesophagus, & pharynx is gene

erally the result of the inhalation of Steam, or some escharotic substance, the different acids, or some alkali. There is an effusion of coagulating lymph lifting up the mucous membrane, & bringing the sides in contact with each other. It may be produced by malignant disease or by simple inflammation. The most common seat of stricture is the upper part of the oesophagus or the lower part of the pharynx. The contraction may be slight or it may exist in a very great degree, & it interferes with deglutition. In severe cases the tube will become expanded above the contraction from the lodging of food in this position. The nature of the obstruction can be ascertained, only by a thorough exploration by means of a probe or similar instrument. The treatment must be conducted upon general & antiphlogistic principles. Attend to the secretions, apply blisters or leeches to the neighborhood of the affected part, & introduce a bougie into the stricture & maintain it there for some minutes at a time. In malignant cases this must not be resorted to. In spasmodic contractions the use of the probe has been found very advantageous.



XXIX. Oesophagotomy is Sometimes performed to remove foreign bodies which have lodged in the tube, but in the majority of Cases, it is unavailing. When the foreign Substance is large and the patient is threatened with Suffocation, this operation may Sometimes be performed. When it is necessary Select the left Side of the neck. Make an incision through the skin, the cricoid fascia, the fibres of the muscle, & separate the parts Carefully by the handle of the knife, & make way down to the oesophagus, avoiding the larynx & trachea & the large vessels in this Situation. If the foreign substance is in an oblique direction it may form a tumor. If it is below the incision, introduce a catheter into the mouth, & make the extremity shew through the neck, to tell where to Cut. After the Substance has been extracted bring the edges together by means of the Continued Suture as in the Case of wounded bowels.

Poisons are Sometimes introduced into the Stomach either accidentally or by design. They may be vegetable or mineral, & if permitted to remain they become absorbed & destroy life. When the poison is of a vegetable Character,

endeavour to wash out the Stomach by means of tepid water introduced by a tube & pumped out by an ordinary Syringe. The point of the tube must not be carried into the lungs.

After the tube is in the Stomach, inject a pint of water by means of a Syringe, & draw it out immediately by an opposite movement of the piston, & should be continued until the object has been effected. When the patient is not insensible administer an emetic. The best for this purpose is equal parts of Salt & mustard diluted with water taken in large quantities assisted if necessary by titillation of the fauces.

The Sublingual Salivary gland is liable to disease as well as the Submaxillary & the parotid. They are liable to the formation of Calculi & various kinds of tumours. The principal disease of the Sublingual gland is Called Ranula. The tumor may be situated in the gland or in immediate contact with it. It is generally of new formation, a cyst being formed & filled with a fluid resembling mucus. It may attain a considerable bulk as large as an almond or pullets egg, It displaces the tongue & teeth & exposes the lip, frequently protruding from the mouth. It is translucent & fluctuating, slow in its growth



& never malignant in its character. The contents are viscid &  
 copious. Temporary relief may be given by simple incision, but  
 in a few weeks there is a reproduction of the tumor. Permanent  
 relief is afforded by excising a portion of the tumor, laying it  
 open freely, & then cutting a portion of the cyst & snipping  
 off portions of it when the tumor collapses, & inflammation  
 effects obliteration. You may evacuate the cyst & insert in  
 it iodine properly diluted, or introduce a thread or a little seton  
 depositing one or two threads in the interior. The operation is the  
 same as for the radical cure of hydrocele. If the tumor is  
 intractable, permanent cure may be effected by excision. This  
 gland is liable to the formation of Calculous concretions. These  
 bodies remain in contact with the excretory duct for a long time  
 without being understood. When the substance is determined it  
 may be removed by a simple incision. The parotid gland is  
 liable to various formations, benign & malignant. Ordinary inflam-  
 mation of the parotid gland is usually found in connection with  
 mumps, in eruptive fevers, & other affections. Abscesses may form  
 but the matter must not be allowed to remain. Fibrous tumors

often forms directly over the gland in the substance of the lymphatic ganglions. These tumors are apt to lead to atrophy of the substance of the parotid gland; & the gland itself may become the seat of these tumors, when it acquires a very large bulk, & produces much suffering with impediment in the movement of the jaw. Such tumors are most frequent in ~~young~~ old subjects.

When malignant they are usually fatal, & when excised they are apt to return. An operation may be performed in these cases, but it is difficult & bloody. The duct of Steno is liable to obstruction from Salivary concretions. It is liable to be divided by a fistula or osthucine. In these cases the Slough passes out upon the cheek. When the fistula is dependant upon a wound it must be treated upon general principles, approximated by the twisted suture. If there is little loss of substance, endeavour to pass the edges & effect the approximation by several points of the twisted suture. When there is much loss of substance, a piece of integument from the neck may be transplanted.

XXX.

The upper jaw differs from the lower, having a cavity called the *Anterior* which opens in the middle meatus



of the nose & which is liable to disease. In the adult bone it is  
 capable of containing from 6 to 8 <sup>drachms</sup> ~~ounces~~ of fluid; & we have often seen  
 it arising from this various kinds of tumors, the most common form be-  
 coming encephaloid. The malignant tumors occur frequently  
 in young subjects. It is also liable to ordinary inflammation & its  
 consequences. There is an accumulation of pus found in inflam-  
 mation which will be attended by the ordinary symptoms, & the pain  
 is frequently connected with one or more teeth, with phlegmated Con-  
 dition of the skin, sometimes there is an oedematous Condition of the  
 blood. The matter often escapes down the throat of the patient, es-  
 pecially when he is lying down. In such cases the alveolus  
 must be perforated, to give vent to the pus, & certain fluids must  
 be injected, which after a long time will effect a cure. The teeth  
 are frequently also in a state of inflammation & decay & when  
 arising from this Cause, extract the Teeth & make an incision  
 through the Septum of bone into the Cavity with a common trocar  
 making the opening of requisite dimensions, & the matter will  
 drain off as fast as it is secreted. Inject it by means of a Syr-  
 inge with a Curved nozzle, with simple water or some slightly

astringent lotion, as water containing Sulphate of zinc, or acetate of zinc, Sulphate of Copper, Nitrate of Silver, bichloride of mercury &c, Several times during the 24 hours, being careful that some of the solution passes down into the stomach. If there is no decay of the teeth the Cavity may be approached, by making an opening above the roots of the teeth dissecting away the mucous membrane, & introduce a trocar in this situation. This is not as eligible a mode as the other. Accumulations of mucus or water in this situation are extremely rare. Such a tumor presses against the surrounding parts in every direction.

This is not malignant & all that is necessary is to draw the middle grinder of the upper jaw & cut as when there is an abscess there. Malignant tumors are most liable to occur in young subjects, growing with immense rapidity & producing fatal results unless they are removed & when removed they are almost certain to return. When operations become necessary, the tumor must be cut around & not into. Try to prevent disfigurement as much as possible, & make but one incision curvilinear in its shape. The amount of bone to be removed depends upon Circumstances



& should be removed with the proper instruments. The lower jaw  
 is subject to disease, but not so frequently as the upper jaw. Such  
 as *epulis* which is liable to destroy the part & the patient; liable to  
 return after extirpation & which generally arises from the sockets  
 of the teeth. Nothing can be done here except by an operation, & the  
 principle upon which it is to be conducted is the same as when  
 you deal with a similar tumor in the soft parts. Remove part of  
 the jaw bone before & behind the morbid structure. Then remove  
 also a cystic tumor of a fibro cartilaginous character. When an  
 operation becomes necessary, void the duct of Stens & the *porta  
 dura*. Make the incision along the base of the jaw bone, or if  
 requisite use two incisions. Then make a vertical incision termi-  
 nating at the angle of the mouth or further on. Then divide the  
 jaw bone in front, having got rid of the tooth if it remains.  
 Dissect the skin from the outer surface of the bone, carry the  
 knife along the inner surface, & cutting along the angle of  
 the bone, instead of the knife use the proper instruments  
 to detach the bone from its connections, being careful to  
 divide no arteries & nerves, which may be easily avoided.

**XXXI.** Closure of the jaws, is met with, almost always arising from the administration of mercury. It is usually attended with partial dissection of the jaw bone & the loss of some teeth, with great contraction of the soft parts where the sloughing has taken place. The inferior jaw becomes immovably fixed to the anterior jaw. The patient has great difficulty in introducing the requisite quantity of food, being frequently unable to grind it between the teeth. There is frequently perforation of the cheek & sometimes loss of one or both lips with great deformity behind the ears. Such diseases when relieved are apt sooner or later to return. The cicatrice made in the operation has a great desire to contract. There is sometimes recensus of the temporo maxillary articulation. In some cases we find the masseter & pterygoid muscles involved especially when the sloughing process extends backwards; they become permanently contracted, shortened in their fibres. Operations performed for these cases are very severe & painful, & attended with much loss of blood. In performing the operation, dissect away the offending structures, all the hard indurated mass, &



in this way liberate the jaw bone. To prevent recontraction, endeavor to effect & maintain separation by means of wedges of wood. The wedges should remain some hours each morning & evening. Portions of necrosed bone & diseased teeth must be removed before the dissection of the cicatrix.

Cleft palate may be limited to the soft palate or also involve the hard palate. When it extends only to the soft palate; the operation consists in seizing the edges of the cleft & approximating them by several points of the interrupted suture; but first a preliminary course of treatment must be instituted. The patient should not be less than 14 or 16 years of age as the operation is a slow & unpleasant one. The general health should be good at the time of the operation. The patient should not be too plethoric, nor should he be impoverished. The parts should previously be accustomed to manipulation or a process of titillation. In performing the operation let the light fall down into the throat, let the head be thrown backward & held by an assistant, the patient being in a chair, the tongue depressed & the mouth wide open. Seizing hold of the navel or the inferior extremity

of the cleft with the proper instrument to extend the margin of  
 the cleft, & cut downwards with a small, sharp pointed narrow  
 bladed bistoury; pare the edges from below upwards, & from  
 before backwards, removing but a small portion of the mucous  
 membrane; then seize hold of the opposite side in the same way, &  
 perform the same operation. Wait until the blood vessels cease to  
 throw out the blood, let the mouth be gargled with water. In  
 introducing the Sutures let the first be introduced in the middle.  
 Peculiar instruments are necessary for the introduction of the Sutures.  
 The ligature should consist of a piece of Silk well waxed, & sufficiently  
 stout, of medium thickness. It is passed through a slightly curved  
 short needle. You first penetrate the upper left margin of the fissure,  
 let an assistant seize hold of the point of the needle with a pair of forceps.  
 & by separating the Catch of the instrument confining the needle, it drops  
 out & is drawn through the margin along with the ligature. The needle is  
 then replaced in the jaws of the instrument & is carried on to & through  
 the opposite margin at a corresponding point, in the same manner.  
 The ends of the ligature are brought out at the angles of the mouth.  
 Another Suture is placed  $\frac{1}{2}$  or  $\frac{3}{4}$  of an inch above this one, & another



until a sufficient number have been introduced. In tying the ligatures begin with the lower one, tying them in a double knob The knots must not be drawn too tightly. After the operation the patient should be kept in a room maintained at an equal temperature, & he should be kept very quiet without talking, laughing, or coughing. Food should be introduced by means of a nap making use of soft custard arrow root, tapioca, Sago, jelly &c.; nothing requiring mastication. Usually at the end of 3 days the upper suture may be removed the middle one should remain until the end of the 4<sup>th</sup> & sometimes to the end of the 5<sup>th</sup> & 6<sup>th</sup> day. Sometimes after this operation there is a little wound opening at the anterior extremity of the former gap which may be closed by gently touching the parts with the nitrate of silver; but sometimes the introduction of another suture is requisite.

Bronchocle or goitre is most common in the mountainous regions of different countries. It is observed in many inferior animals. It consists in an hypertrophied condition of the thyroid gland & is most common in the female sex of young subjects near the age of puberty. It may begin in both lobes at once or in only one. As it proceeds it gives rise to a tumor which attains a great

size. The tumor is usually indolent, but there is generally enlargement of the subcutaneous veins. The tumor is generally regular & movable. It is slow in its progress, & never malignant in its tendencies, but often interferes with the respiratory functions & proper nutrition. In the early stages the tumor is soft & pliant & is more vascular than in the natural state; afterwards it is dense, firm, resisting & inelastic, the cells becoming very much enlarged. In some cases there are nodules of pus in the tumor. Occasionally the Capsule in which it is enclosed becomes ossified. In the early stages the treatment is very simple. 1<sup>st</sup> get rid of the exciting cause whatever it may be, remove the patient from his accustomed atmosphere; give him hot water to drink, & regulate the diet. If the tumor is small & the patient in a proper condition, administer Euthyriacum; iodine in the form of tincture or substance, or as iodide of potassium, or bromide of potassium or similar preparations. Locally, make use of some Euthyriacum liniment, ointment, or plaster. The best article is the ointment of the iodide of lead 10, 12, or 15 grains to the ounce of lard, applied twice in the 24 hours. Or the tincture of iodine properly diluted



bushed over the parts according to Circumstances. Do not excite the capillary vessels, nor let the application be too strong. In older cases, where the tumor is large this will not be sufficient. When there is a cyst or a number of cysts, let out their contents & inject the tincture of iodine, the same as in hydrocele; or insert a seton; or employ partial or complete incision. If there is a nodule of bone or cartilage cut out this portion. When all these remedies are unavailing & there is danger of Suffocation, an operation is the dernier resource, but it should seldom be performed.

**XXXII.** Sometimes there is a tumor Situated apparently in the substance of the thyroid gland, passing along the median line over the larynx, on the surface between the hyoid bone & the thyroid Cartilage of an encysted character. Its contents are fluid & of a sero mucilaginous consistence, sometimes more or less solid. This constitutes what is called hydrocele of the neck, & is comparatively rare. It occasionally acquires a considerable bulk the size of an orange & in some instances even the size of a fetal head. It may first develop itself in a bursa in this situation, or it may be in some cases a new formation by the deposit of Coagulating

lymph, gradually assuming the character of a cyst. The tumor is never malignant in its character, it fluctuates under pressure, & may even be partially translucent. The treatment is on the same principle as that for ordinary hydrocele, drawing off the contents & injecting into the interior a slightly irritating fluid. Sometimes a free excision may be made. The larynx and trachea in its mucous membrane is prone to inflammation & its consequences. In Croup there is frequently a deposition of coagulating lymph, assuming the form of the tube, & extending to the fauces on one side & on the other to the bronchial tubes. It varies in its thickness from the slightest film to  $\frac{1}{3}$  or  $\frac{1}{4}$  of a line. It acts as a mechanical obstruction interfering with respiration & articulation. This disease is frequently fatal & where all other remedies have failed relief has been given by a surgical operation, in what is called tracheotomy but this is only occasionally successful, & the greatest difficulty in this operation is that it is postponed too long. Oedema of the larynx is the result of an effusion of serum or serofibrous matter in the submucous cellular sub.



stance around the mouth of the glottis, & there is a difficulty in inspiration. The Existing Cause is usually Suspension of the cutaneous perspiration, or a cold; but Sometimes it is Connected with venereal disease. The patient must be relieved by Early & free incisions. Seat the patient on a chair or the edge of the bed depress the tongue, & make a number of incisions by means of the proper instruments, a common probe pointed bistoury, delicate in the blade & curved in the anterior extremity. When relief cannot be produced in this way perform the operation of tracheotomy or laryngotomy. Chronic inflammation frequently exists in the larynx & in the trachea, most generally in persons suffering from a Syphilitic taint, when there may be ulceration. Sometimes there are little vegetations, partly excrescences from the syphilitic taint. The character of the disease, therefore, must always be enquired into. The chronic inflammation has been treated by the nitrate of Silver with great Success. To perform this operation take a piece of whalebone & convert its anterior extremity for  $2\frac{1}{2}$  or 3 inches into a curve. The handle & curved portion must be soft & firm. Arm the curved extremity with a piece of Soft Sponge

& secure it accurately through little holes existing at the extremity.  
 Soften it first with water & press the water out: then wet the sponge  
 with a solution of nitrate of silver of the proper proportion. Set the  
 patient sit before you, with his head firmly held against the breast of  
 an assistant, depress the tongue carefully & let the patient blow  
 out the air from the lungs, & at that moment pass the instrument  
 down through the epiglottis rapidly, & deposit a small quantity  
 of the nitrate of silver bringing it in contact with the diseased surface.  
 If there is much cough after the operation let the patient immedi-  
 ately inhale chloroform.

Foreign bodies may exist in  
 the air passages. They may be animal or mineral. The patient  
 is immediately seized with immense difficulty of respiration, great  
 spasm of the larynx followed by Cough, & sometimes he becomes  
 insensible. This may subside for a while, & paroxysm after paroxysm  
 may occur until at last the patient dies. These bodies may  
 lodge in different parts of the tube. The body when it descends  
 far generally lodges in the right bronchial tube. The existence  
 of a foreign substance in the air passages must be determined  
 by the history of the Case, auscultation & percussions.



XXXIII.

On examining a child with a foreign substance in the air passages it is best to etherize the patient or give him chloroform. As long as that substance remains his life is not free from danger because the foreign body is liable to displacements, during respiration, & especially during efforts at coughing. There is spasm owing to the involuntary contraction of the muscles of the larynx when the foreign body impinges against the larynx in any part of its extent, often terminating in the most serious symptoms, even instantaneous loss of life. As long as the substance remains impacted in the bronchial tubes it is comparatively harmless but it is liable at any moment to be displaced & produce death. It is also liable to induce inflammation of the lungs, & pneumonia which passes through the same stages as pneumonia produced by other causes; it leads to abscesses, & often gangrene. Occasionally we observe tubercular deposits caused by a foreign substance. Therefore it should be removed soon after its entrance in the air passages. It is sometimes ejected spontaneously when the muscles of the larynx are thrown off their guard; violent cough ensues & thus the patient recovers. Such an occurrence is not to be expected as a general rule. The common practice in such a case is to administer an emetic, such as

Sulphate of copper, Sulphate of zinc, ipecacuanha, or tartar emetic.

In the great majority of instances in such practices the case has been aggravated & the life of the patient placed in infinite danger, he being frequently destroyed by suffocation in the very act of vomiting.

The practice is therefore to be condemned. Another practice in a few instances successful is in the use of <sup>ta.</sup>sternutories to excite sneezing.

In some instances the patient may be partly under the influence of an anæsthetic, & titillation may be produced in the mucous membrane of the nose, & sneezing being excited the foreign body may be removed.

A frequent practice consists in turning, inverting, shaking & striking the body; & the success in such cases is when the substance is of some ponderable material. If all these attempts fail the throat must be cut.

There are three operations, laryngotomy, tracheotomy, and laryngo tracheotomy, which may be performed for this purpose. If you are certain the foreign body is in the larynx perform the operation of laryngotomy, making a free opening into the cricothyroid ligament extending through the whole length of the membrane, or extend it downward into the cricoid, or upward into the thyroid cartilage. If the substance be in the trachea or one of the



bronchial tubes the operation of tracheotomy must be performed.

Stay open the tube freely in the vertical portion of its extent. Make the opening at least an inch and a quarter or an inch & a half in the adult, or one inch in the child, that the substance may be able to pass out.

Place the patient if a child upon the back with the head & shoulders properly elevated, the head being thrown horizontally & the chin drawn back to expose these parts to their fullest extent. Then give the patient an anæsthetic agent, & begin the operation. In laryngotomy the operation is easy; the parts are situated superficially, & the skin & subcutaneous cellular substance with the superficial fascia of the neck only are to be divided. There is in this situation a laryngeal artery which must be sought for. If necessary ligate the artery on both sides, & then make the opening from below upwards, or from above downwards, with a sharp instrument. If the foreign substance is not expelled the moment the opening is made, seek it & push it up into the mouth by means of a probe or grove director. Sometimes the foreign substance in the trachea is not immediately expelled upon laying open the trachea after the operation of trachea has been performed. The operation of tracheotomy is a very difficult one. Always give the patient an

anæsthetic, & proceed cautiously & boldly with the operation. Commence the incision above the cricoid cartilage, carry it along the median line until you get in contact with the trachea. Divide the muscles, but not the fibres until you get to the anterior surface of the trachea. The arteries here present must be held away by an assistant. Commencing above the cricoid cartilage carry the incision down to the sternum; working down to the trachea do not divide the isthmus of the thyroid, but push it out of your way. Then make the proper incision into the tube.

**XXXIV.** In opening the trachea pass the knife from below upwards. The operation of laryngo-tracheotomy consists in laying three tubes into one, carrying the incision up from the trachea into the larynx. This is sometimes performed as a secondary matter. In all cases of these operations, as soon as the opening has been made, place the patient in the prone posture with the face downwards, so that no blood may pass into the air passages. If the foreign substance remains in the trachea or bronchial tubes, various instruments may be employed to remove the body, but the efforts must not be



continued too long. Keep the opening patent by proper means, using certain forms of hooks, which are passed across the edges of the wound into the trachea, & secured, by means of pieces of tape, to the neck. After the operation has been performed place the patient in bed with the head & shoulders properly elevated & place a rag or piece of gauze over the wound, particularly in warm weather, to prevent the ingress of foreign substances. Regulate the temperature of the room by the thermometer to from  $68^{\circ}$  to  $70^{\circ}$  or  $72^{\circ}$ . If there is threatening of pneumonia employ the antiphlogistic treatment, especially if the substance has not been expelled. Often after the expulsion of the foreign substance, the patient will not recover. Sometimes the operation being neglected the substance has remained for months, & has often produced excavation in the lungs. Occasionally it creates gangrene in the lungs. The wind pipe occasionally requires opening for other reasons; on account of adema of the glottis, or a pharyngeal abscess, or great swelling of the tonsils, when the patient is in great danger of suffocation, or in case of the appearance of a false membrane as in croup,

from other causes. In performing Such an operation to promote the introduction of air, the opening must be kept patent, by means of a tube placed in the opening & retained by means of lappes tied at the back of the neck. Such an instrument is liable to be clogged by blood or mucus, & therefore should be frequently removed, cleaned, & washed, & then immediately replaced. The treatment must be continued until it is no longer necessary.

There is Sometimes a permanent Contraction of the Sternocleidomastoid muscle constituting *wry neck*, drawing the head to one side of the neck. It may arise from a variety of causes, the most common being inflammation. The operation in this case, when the affection is in the confirmed stage, consists in dividing the fibres of the muscle. In the earlier stages rectification may be attempted by the proper apparatus. In operating, the division should be effected about one inch above the sternal point of origin. The patient should be etherized, & the instrument should be introduced so as to cut from behind forward, passing it flat.



nice. As soon as the division has been effected, there will be a sort of Snap, & there will be an interval where the incision has been made, & there will be gradually mobility of the neck.

Place some adhesive plaster over the puncture & treat the case on general principles. A few days afterwards apply the proper apparatus, & allow it to remain for a considerable length of time.

This of course is a sub-cutaneous operation.

Wounds of the neck may be slight or serious, accidental or intentional. It may include a large number of muscles, blood vessels, nerves, with the tongue & pharynx. The first thing to be done is to arrest the hemorrhage. If the patient is partially insensible, attend to the blood vessels, & endeavor to recover him by Sinapiems & Stimulants. If there is much bleeding from the jugular veins & not too much complication, endeavor to arrest it by Systematic Compression. Well, stitch together, if possible, the air passages or the oesophagus or pharynx, using the Suture freely. Affect approximation of the superficial portions of the wound, firmly or slightly according to circumstances. Give the patient Cold water

& let him hold cold water or ice in the mouth; or administer water by the rectum, & especially food by the rectum instead of introducing it by means of a tube into the stomach.

When necessary, as in case of maniacs, & those attempting to <sup>commit</sup> ~~attempt~~ suicide, place the patient in a straight jacket, & place the head in the proper position, to prevent their tearing away the dressings. Wounds of the face are common

& the physician or Surgeon, must try to prevent a Scar or cicatrice. In incised wounds the proper dressings are simple. Introduce a delicate Cambie needle  $\frac{3}{4}$  in long & as thin as a hair, & pass it through the edges of the wound. Wrap a delicate thread around it & approximate the parts carefully & gently, & remove the needle within 24 or 36 hours, & there will be scarcely the appearance of a Scar. Wounds of the scalp

are of various kinds. Simple incised wounds extending down to the bone, may be approximated by picking away little tufts of hair on each side & passing around the base of the hair a number of ligatures & then effecting close approximation. Where this is not expedient, & where there is much Contusion



cut the hair close, & tack the parts together by the twisted, or the interrupted suture. Where loose pieces of the Scalp have been detached, close the parts perfectly, & treat the Case as in wounds of other parts of the body. Replare the Scalp & cranium will be the result.

XXXV. Wounds of the Scalp when simple, yield as readily as in other parts of the body. When of a Complicated character they may be followed by suppurates & other bad effects, especially when the injury has occurred in an intemperate individual, or in one whose health is in some degree impaired. When this disease takes place it is characterised by the same symptoms, as when it takes place in other parts, & must be treated in the same manner.

The disease of the scalp is liable to be transferred to the membrane of the brain & even to the organ itself. If there is great tumefaction, much effusion of Serum, or Serum & plastic matter, or purulent matter. Make early & free incisions, & at all points punctures.

Wounds of the Scalp are liable to be followed by nervous symptoms; the part may become the seat of neuralgia, or great tenderness in the part, or Spasm in the muscles of the face, or general

convulsions. There may be some defect in the eye, Strabismus, or partial contraction of one of the pupils, partial droopness, & there are Symptoms, when the wound is in the Scalp alone or combined with injury of the Skull; or abscess in the liver, lungs, Spleen, & some articulations. Another result of injuries of the Scalp & Skull is partial atrophy of one or both testes; & another is morbid erection of the penis especially when the injury is on the back part of the Skull, & there is inflammation of the cerebrum & cerebellum in this direction. These Symptoms thus resulting must be treated according to circumstances, very frequently yielding to proper diet & remedies which will improve the secretions. At other times benefit is derived from the use of emetics, Especially when the pain is of a neuralgic character, as well as at other times, we institute an antiperiodic Course of treatment; using quinine, or quinine & arsenic, or quinine combined with belladonna, or combined with strychnine, or quinine & some other antispasmodic remedy. When there is at the same time great tenderness, do not hesitate to apply leeches, or blisters, or the tincture of iodine, or the



nitrate of silver, & when three fail, make a per incision down to the bone & then introduce a tent to cause it to discharge, maintaining it for some time, weeks & even months. When abscesses occur in the remote parts of the body, the case may usually be regarded as a fatal one. When morbid exertions occur tranquillize them by anodynes, antispasmodics, cold, or refrigerating applications. Fracturing of the testicle admits of no remedy but the removing of the cause upon which the atrophy depends.

Concussion of the brain means a shaking, commotion, or vibration of the nervous substance produced either by direct injury or indirectly. In consequence of external injury this substance is often shaken up, & in consequence of this commotion or disturbance of the relation of the nervous substance of the brain certain symptoms are produced constituting the affection called concussion of the brain. The most frequent frequent cause is violence applied directly to the skull, or it may be produced by a fall or some other disturbance, or indirectly. Concussion of the brain presents itself in various degrees.

When slight, the symptoms subside in the space of a few minutes. When severe they are more permanent, & the injury may destroy life even on the instant. Contusion of the brain may be divided into 3 Stages. 1<sup>st</sup> The stage of prostration or depression, 2<sup>nd</sup>, The stage of reaction; & 3<sup>rd</sup> The stage of inflammation. The 1<sup>st</sup> Stage is characterized by the same symptoms which occur in an individual who has sustained a severe loss of blood, the patient being in a state of partial or complete syncope, & all the functions of his body & mind are in a state of suspension. Reaction usually takes place characterized by an alteration or restoration of the functions which were previously in a state of exhaustion. This is frequently followed by undue excitement, & if unchecked it may go on into inflammation. In the first stage, the treatment consists sometimes simply of an application of cold water, fan the patient & admit cold to his body freely, & allow a free access of air. If the stomach was previously loaded with ingesta, he may be nauseated, lower the patient's head while in this condition. If the case



is of a more violent character, when the patient is in a complete state of Syncope, with cold extremities & the attendant phenomena, the treatment must be more energetic.

You will only use the remedies applied in the other Case, but you place the patient in the recumbent posture, keeping the head if possible lower than the body; apply Sinapiers to the extremities, Spine, & the pectorial regions: in severe cases make use of Stimulating injections, using a large quantity of Spirits of turpentine, brandy, ammonia, or Salt & mustard, into the bowel with a Syringe. Do not attempt to give Stimulants by the mouth, as the patient cannot swallow.

Do not allow the reaction to be too severe. In cases of relapse producing Compression of the brain, the Case becomes particularly dangerous. Inflammation of the nervous substance, or its membranes, may supervene. This must be guarded off by keeping the patient in his room for days & perhaps for weeks until there is reason to believe the Season of danger is passed, & the diet, bowels, & Secretions must be attended to & watched carefully. If there be over excitement

remove a certain quantity of blood from the arm, even until  
 there is a tendency to Syncope, purge him, give him antimonials,  
 exclude light & noise, & all officious interference. Regulate the  
 diet, elevate the head, apply cold; Shave the head if the Symptoms  
 are urgent, & in this way try to prevent inflammation of the brain.  
 If inflammation has occurred, the patient will have a strong &  
 full, frequent & quick pulse, hot & dry skin, great warmth in  
 the extremities, flushed countenance, suffused eyes which may  
 be partially bloodshot; great intolerance of light & noise: restles-  
 sness, fidgeting, great thirst & perhaps delirium. To moderate  
 this action & prevent fatal results, redouble the antiphlogistic  
 remedies; bleed locally at the arm, & even, if the patient be  
 very plethoric, open the temporal artery, purge him, distill him,  
 apply antimonials, use cold applications Shave the scalp  
 & employ all such means. The inflammation may  
 occur at a variable period. Therefore always enjoin  
 upon the patient the utmost precaution, in regard to the  
 regulation of his bowels, & his habits both of mind & body. A  
 man is not safe after Concussion of the brain for weeks & even months.



XXXVI.

Inflammation of the brain purers at first gradually, but finally produces effusions of various kinds & even softening of the substance of the brain. There is usually attendant upon concussion of the brain, loss of memory, either of the occurrence of former events, or of recent occurrences. In many Cases immense benefit is derived from proper regulation of the diet, bowels & Secretions; & mercury may be administered with great advantage. This may be given with a view of slight ptyalism which may be kept up for several weeks until all the Symptoms have passed by. A permanent irritation may be kept up by a Seton, or issue, or like continuance. Compression of the brain may be produced by several Causes, as effusion of blood, formation & deposit of pus, or fracture of the skull with depression, or depression of the skull without fracture. These circumstances are always the result of external injury applied either directly or indirectly to the skull or brain. Compression of the brain is characterized by a certain train of phenomena which may be regarded as diagnostic. In the first place, a man with this affection, however produced, lies in a state of insensibility.

both bodily & mentally especially in the Confirmed Stage of the accident. The face is exceedingly pale; the respiration is performed with great difficulty, being Slow & laboring. The stomach & bowels are insensible as well as the urinary apparatus. The pulse is Slow full, & laboring generally, but Sometimes it is Slow & feeble. There is always paralysis on the Side of the body opposite to that on which the Compression has taken place. This is owing to the decussation of the fibres of the brain at its base. There is an obliteration of the Special Senses. The pupils of the eyes are generally widely dilated, but one pupil may be more or less Contracted, & the organs are totally insusceptible to light. Very often this exists with Concussion of the brain & renders the Case eminently perplexing & frequently it terminates fatally. A person thus laboring may perish in a few minutes, or the System may react & he may afterwards perish from the resulting inflammation, just as after ordinary concussion. Compression of the brain produced by an effusion of blood, usually Comes on within a few Seconds after the infliction of the injury, though not necessarily so. The



vessels are injured & when the heart Contracts & Sends the blood  
 up to these vessels, a certain quantity of fluid escapes, giving  
 rise to the Symptoms of Compression. This effusion of blood  
 maybe found between the inner Surface of the Skull & the  
 outer Surface of the dura mater, or it maybe extravasated  
 into the arachnoid Sac, upon the Surface of the brain, or  
 between the arachnoid membrane as it passes over the brain,  
 or it may be poured out into the ventricles or into the Sub-  
 stance of the brain; but the most frequent Seat is either  
 between the dura mater & the Surface of the Skull or in the  
 arachnoid Sac; & the effusion is more abundant than when  
 occurring else where. This is apt to be the Case when the effusion  
 depends upon the laceration of the middle artery of the dura  
 mater. The effusion may lay directly upon the Surface of the  
 membranes of the brain between the arachnoid membrane, & the  
 Surface of the cerebral Substance, or between the lobes of the  
 brain, or in the matter of the brain. Thus maybe large  
 effusions of this kind ~~without~~ without any fracture or severe Contusion.  
 The locality of the blood must be determined before the

treatment is commanded. If the patient is plethoric, under certain circumstances, blood may be detracted with great advantage. If the patient is exhausted, pale, & cold, you must give stimulants, apply Sinapisms to the extremities, to the precordial region, to the spine, give stimulating injections, & thus only reaction is brought about, & then take care, there shall be no overexcitement. When the blood is accessible, especially if there be a fracture, you use the trephine & get rid of the effused fluid. There must be perfect rest of the system & the brain, & the patient must be watched until there is reason to believe the clot has been in a great measure absorbed. In the later stages the iodide of potassium may be administered in the usual manner. Compression of the brain may be produced by suppuration, but this is not likely to happen immediately after the infliction of the injury, for the brain & the system have to pass through the process of inflammation, & therefore several days may elapse, before Compression arises from this cause. The



matter may occur in different situations the same as the  
 extravasation of blood. The most trifling injury in the scalp  
 may produce this result. But there may have been a slight  
 contusion which has been disregarded, the parts becoming  
 puffy, edematous, producing paralysis, Coma, Convulsions  
 & soon, until the case terminates fatally. Or there may  
 have been a fracture of the skull, simple or compound,  
 with or without compression of the brain. Or there may  
 have been effusion of blood which has been neglected, or  
 not properly absorbed, leading to inflammation & the pouring  
 out of matter. In such cases the treatment to be adopt-  
 ed, is to afford an outlet, early after finding out the place  
 of the formation of the matter, by perforating the skull &  
 making a free opening by means of the trephine. If the mat-  
 ter is beyond the dura mater which is discolored & projects into  
 the opening made, you do not hesitate to puncture it. If  
 there is resulting inflammation treat it antiphlogistically.  
 The matter may be so situated as to be inaccessible, when  
 the patient must be treated on general principles.

## Skull

XXXVII

Fractures of the skull are frequent in their occurrence, and are always liable to be followed by the most Consequences. They present themselves in a great variety of forms. There may be but a slight fissure in the bone, or the bone may be broken at several places; or the fracture may be depressed the bone being driven so as to impinge, more or less, upon the membranes of the brain. The fracture may be simple or compound when there may be solution of continuity of the osseous tissue without any wound of the soft parts, or there may be a wound in the soft parts communicating with the fracture in the skull. It may be attended with depression of the bone without any fracture, the bone simply bending in consequence of its elasticity. There may be fracture of one table without any fracture of the other table. The simplest fracture is that of a fissure when there is merely a separation of the bony substance without any loss of that bony substance. It occurs frequently at the base of the Skull sometimes pursuing the Course of the Sutures, & sometimes going across the Sutures. When thus occurring, it is very serious, & generally occurs from a fall



from a considerable height where the vertex comes in contact with a hard substance. Owing to the important & delicate structures enclosed in the skull such a fracture is liable to be attended with effusions of blood at the base of the brain, and with discharges of blood from the ear, nose, & mouth, & occasionally from the orbit of the eye; & there is even a discharge of serous fluid, & the patient lies in a state of insensibility, scarcely breathing, showing very few signs of life having both compression & concussion of the brain. Sometimes the bones are absolutely separated from each other, & this is always extremely dangerous. Endeavour to stimulate the patient judiciously by stimulants internally & externally; inject spirits of turpentine, brandy, or hartshorn; place the patient in the recumbent posture & allow free access of air.

When reaction has been established, watch the case lest the excitement be too severe & terminate in inflammation of the brain, or inflammation of the brain & its membranes.

Fracture of the skull may occur, without any displacement, which may be simple or complicated.

This may be attended with effusion of blood, or there may  
 be only slight concussion of the brain without any symptoms  
 of compression. In such a case the treatment is simple.  
 If there is a wound in the scalp bring its edges together the  
 same as with a wound in other parts of the body, shaving off  
 the hair around the wound, if necessary. Then endeavor to  
 avert inflammation, in which consists the great danger.  
 Therefore you employ the antiphlogistic treatment to its  
 proper extent. If symptoms of compression come on soon  
 after the occurrence of the accident, then, especially if the  
 injury has occurred at the lower & anterior portion of the  
 parietal bone or the temporal bone, do not hesitate to perforate  
 the skull to give vent to the effused fluid; but not in the  
 first instance. There may be a fracture of the skull with  
 displacement & the inner table is driven below the surface  
 of the skull, & perhaps into the membranes of the brain, or  
 the substance of the brain itself. It may be simple or com-  
 pound, with or without a wound. If this depressed portion of  
 bone be allowed to remain, inflammation, either within a



Short time after the occurrence, or at a more remote period,  
 will occur; or irritation may occur in Epileptic Convulsions  
 with gradual but certain impairment of the intellectual powers.  
 Here, you must not hesitate to apply the trephine. When the  
 bone has sunk merely slightly beyond the level, and there are no  
 serious symptoms, the case must be treated upon general prin-  
 ciples. There is a kind of fracture called punctured fracture  
 of the skull. It may exist with or without symptoms of  
 concussion & compression. The patient may at first be only a  
 little stunned, but in a few days there occur symptoms of  
 inflammation ~~of the brain~~ of the brain. Then cut down at once through the  
 scalp, apply the trephine & remove the offending portions of bone,  
 employing other antiphlogistic remedies. The best plan is to  
 have the skull trephined as soon as possible after the occurrence  
 of the accident. Sometimes the appearances of a fracture  
 are deceptive; where the parts struck are condensed and are  
 not susceptible of effusion, but the surrounding parts being in  
 a laxative state, become subject to effusion. Sometimes there  
 is a fracture of the external without involving the internal table

but this can take place only in adults and middle aged persons, where the Skull has a diploe. This is Comparatively rare, & taking it abstractedly, the treatment is as simple as the accident is rare, which is to let the Case alone, & acting upon general principles. Still more rarely there is a fracture of the internal table without a fracture of the external table; & such Cases are impossible of being diagnosed, & can only happen when the internal table is very brittle, & the force applied must be very much concentrated. Such Cases must be treated upon general principles. If an abscess form between the dura mater & the Skull, or in the dura mater, & the bone shall become deprived of its vitality then the Skull may be perforated to give vent to the effused fluid, but unless this occurs, it should not be done.

Occasionally there may be depression of the bone without any fracture, but this can take place only in infancy & early childhood. These Cases seldom terminate fatally, & must be treated upon general principles. Application of the trephine. This operation is Comparatively simple



It is performed for the purpose of removing offending portions of bone. The patient is placed in the recumbent position, with the head & shoulders elevated; the scalp is shaved, & an incision made into the part where the instrument is to be employed. The flaps are dissected off from the skull, saving as much of the pericranium as possible, & they are laid out of the way. The trephine is applied upon a firm piece of bone. If any portions of bone are entirely detached, they must be removed. Always save as much as possible, and bring every fragment to its proper level.

**XXXVIII.** The operation of trephining is sometimes requisite as a secondary matter, & may occur months & even years after the injury has been inflicted. The operation may be performed for the relief of epileptic convulsions. Sometimes the patient perishes from inflammation caused by the operation. After performing the operation the parts must be approximated by a few points of the interrupted suture; then apply a few adhesive strips, then a compress, & over that a few adhesive strips to confine, & confine the whole by means of a roller carried around the head in the usual way. The patient is placed in bed & is

treated antiphlogistically. When there is much loss of bone the best plan is to apply a piece of thin & stiff sole leather or something of that kind directly over the part to confine the brain, taking care to allow of drainage by perforating it at several points. The opening in time closes up by a sort of fibro cartilaginous matter, The ~~dura~~ matter flaps of the scalp approximate each other, inflammation takes place & a layer of lymph is poured out. A long time elapses before the wound is perfectly closed & therefore the patients must be watched very carefully. The patient should wear a piece of leather, silver or some other substance over the opening confined in the usual way. Wounds of the brain are frequently of a frightful character, likely to be followed by the death of the patients either from loss of blood, the effects of inflammation or the effects of the formation of a fungus of the brain. These are to be treated upon general antiphlogistic remedies, removing all foreign substances in contact with the wound, all that are accessible, not interfering too much; then dress the parts the same as after an ordinary fracture; the object



bring to avoid inflammation, & the formation of a fungus. If a fungus should be formed, Endeavour to suppress it by Systematic Compression. The fungus is the seat of an unhealthy discharge, & they are often exceedingly frightful tumors. Apply Systematic Compression by the graduated compress; & if this does not answer, apply an escharotic substance, such as the Vienna paste, Caustic, or the knife, & try to bring it down to the proper level of the brain. But the prognosis is very unfavorable in almost every case of this kind.

**XXXIX** Diseases of the anus and rectum are liable to occur at all periods in both sexes & are often very troublesome. They comprise abscess, anal fistula, polypus, tumors, prolapse, ruptured anus, stricture, neuralgia, pleuritis & some others. The method of examining this part of the alimentary Canal is various. If an adult male, place the patient upon his knees and forearms, so as to throw up the buttocks, presenting towards a strong light, concentrated, as much as possible upon the part. Another posture is that in which the patient rests his body

over the edge of a bed, or over a lounge separating the limbs asunder. Or let the patient lay upon the side, usually the left, the limbs being drawn up; or let the patient lay upon the back, presenting the breech across the edge of the bed.

Give the patient, the evening previous to the examination, something to clear out the bowel. Cold water is an eligible enema in such cases. The examination may be purely digital in many cases, the finger being well oiled, introduced & carried about in different directions. If there is a fistule, use in addition, a common pocket probe; when the object is to make a thorough exploration, the speculum may be used. The adjacent organs should also be examined, such as the uterus & the bladder in the female, & the bladder in the male. There may be abscess of the Anus or its immediate vicinity. The anus is liable to inflammation & its consequences. There are two kinds of abscess in this region; in the subcutaneous cellular substance, or in the submucous substance; the phlegmonous or the tubercular, stumous or Scrophulous, called the Cold & chronic abscess. The phlegmonous variety may occur in



all periods and in all conditions. It may arise from external injury, or it may go on without any assignable Cause. The pain is of the throbbing character, & there is local & Constitutional distress. The bowel may be detached from the surrounding parts. The treatment consists in a free incision before matter points externally or internally. A puncture of  $\frac{1}{4}$  or  $\frac{1}{2}$  inch is in general sufficient. Always observe cleanliness & rest; & employ the water dressings, simple or medicated. The stumous abscess is always essentially indicated with a stumous condition of the system. It is often the immediate result of tubercular deposit in the lungs, & in the mucous follicles in this part of the alimentary canal. These are sometimes low down, just at the verge of the anus, when an ulcer is formed at first, which increases to an abscess. The symptoms are frequently of the mildest character, with scarcely any inflammation in the part, without any constitutional disturbance; & the first intimation is, generally, the giving way of the part, which contains the regular stumous matter. Then make an incision, & evacuate the contents. There is rarely extensive sloughing in this kind of abscess. The

treatment is conducted on the same principle as in other cases of abscess. As the result of abscess there is here frequently a fistule, which may be long & tortuous, or more or less complicated. There may be one or many. Generally there is but one; but when there are more they may communicate with each other. A complete fistule extends from the surface of the skin into the interior of the bowel. It is incomplete, when it extends from the skin to the bowel, or from the bowel towards the skin, when having but one opening, it is a blind external, or a blind internal fistule. An ordinary fistule will always discharge a certain quantity of purulent matter, & the external opening is frequently surrounded by a number of granulations of an unhealthy character. The internal opening is generally just above the junction of the skin with the mucous membrane. There is generally but one internal opening no matter how many external ones there may be. In cases of long standing, it is lined by a layer of coagulating lymph in a state of organization, frequently assuming the properties of the mucous tissue, when the tract is always moist by secretions of mucus passing into it from the bowels. In old cases the parts are very much indurated. The



symptoms of an anal fistula, are long continued pain in defecations, pain in walking, riding, or sitting; the linen will be found stained from time to time; the shirt becomes frequently glued to the part, and there is moisture, and occasionally there is, perhaps, a little fecal matter passing through. Then a careful examination must be instituted. An anal fistula is always the result of an abscess in this situation. As a general rule when the patient is willing to submit to the knife, and the disease is of a character to demand an operation, always use the knife in preference to anything else. This is a very painful operation, and the patient should always take an anæsthetic. Before the operation the bowels must be evacuated, so that after the operation there may be no necessity for evacuating the contents of the bowels, for three or four days afterwards. Place the patient in the most favorable position; then introduce a grooved director, & bring the distal point out through the anus, & place it upon the corresponding buttock, and thus perfectly expose the parts to view. Then introduce the point of the bistoury, or a common Scalpel, and divide the parts separating them at once. The operation is usually free from hemorrhage. Then take a strip of lint, oil

it, & carry it down into the bottom of the wound, inserting about 3 or 4 inches into the bowel, letting it hang out of the external skin. Place the patient in bed, & treat him on general principles first giving a grain of morphia.

**XL.** Complete the dressings, after the operation by the application of a compress and the T bandage. At the end of about three days administer an injection or a mild laxative. Keep the patient on a mild diet which should be as concentrated as possible. The dressings should be renewed once in the 24 hours after the first two days, the parts being always cleansed, & thus the treatment is continued until the wound heals from the bottom when all dressing may be dispensed with, attention being paid to cleanliness, & the maintenance of a soluble condition of the bowels. When dealing with an external blind fistula, perforate the bowel, & make the opening in the site where the opening usually occurs and then perform the operation as in the other instance. An old operation for the relief of this complaint, is by the Seton, a piece of narrow braided introduced through the opening, and loosely tied being allowed to cut its way out which it will do in the course of a few weeks.



more or less, according to circumstances. It is free from pain & will  
 allow the patient to go about his business. Ulceration of  
 the bowel may occur in a variety of forms. At the verge of the  
 anus, between the cutaneous folds there are frequently little  
 aphthous ulcerations, which are apt to occur in persons predisposed  
 to herpetic disease in other parts of the body. They are irritant, lead  
 to itching, & have a little discharge which is not of the nature of  
 healthy pus. The treatment consists in removing the exciting  
 cause, using slightly astringent washes, or simply Cold water &  
 soap; or solutions of  $\frac{1}{6}$  or  $\frac{1}{8}$  of a grain of the Bichlorate of Mercury  
 to  $\frac{1}{2}$  oz of lime water. Another variety exists in the mucous  
 membrane of the anorectal region. There is one particular kind  
 called fissure. There may be here, ulcers of different shapes, which  
 are usually few in number, & superficial in extent. There may  
 be ulcers situated higher up in the rectum. Sometimes there  
 are specific ulcers within the verge of the anus. When thus oc-  
 curring they are often attended with enormous suffering, &  
 there is great torture in the act of defecation, and this pain may  
 continue for several hours afterwards. A thorough examination

must be instituted in these Cases, and this cannot be done without extreme torture; therefore the patient had best first be given either chloroform, or a large anodyne. There is always Constitutional distres. In these Cases, an incision must be made with the knife. The operation consists in notching the ulcer & is not attended with hemorrhage or considerable pain, & the cure is certain. If the ulcer is comparatively free from pain, the nitrate of Silver may be used in substance or in solution. When there are Syphilitic ulcers at the verge of the anus, which may be determined by their indurated character, the anti venereal remedies must be employed.

A polyp may exist in this situation, & may be highly organized, of a soft Spongy Structure, consisting of a large quantity of cellular substance covered over by mucous membrane. There may be a polyp of a fibrous character much the same as is found in the nose, Capable of attaining the size of an egg, but this is comparatively rare. Another variety is the Cellulo-vascular, likely to bleed. The symptoms produced are those of mechanical obstruction attended with sense of fullness and weight in the part, with more or less mucous discharge; and often in straining



at stool, the polyp protrudes. The tumor may be disposed of by  
 excision, ligation, or crushing according to circumstances. The  
 best operation, when possible, is ligation. Hemorrhoids are of  
 frequent occurrence. A hemorrhoid or pile is a tumor situated at  
 the verge of the anus or within it. There are two distinct kinds  
 differing in their situation, in their structure, & in their effects.  
 One kind is seated at the verge of the anus, & the other within the  
 anus just above the sphincter muscle, or in its vicinity. Both  
 varieties are common, they take place in both sexes, & at all  
 periods of life. On examination the first kind is composed of a sac  
 or bag, filled essentially with blood, communicating with one of the  
 hemorrhoidal veins which has been suddenly ruptured during  
 defecation, & had its contents diffused into the subjacent cellular  
 substance. The tumors may exist singly or in numbers. If  
 several days elapse after the formation of these tumors the effusion  
 becomes clogged up by coagulating blood. The internal hemorrhoid  
 is situated within the anus & is composed entirely of blood vessels, mu-  
 cous membrane & cellular substance. It is essentially erectile, is  
 liable to bleed, is scarlet in color, & when protruded partially accreted.

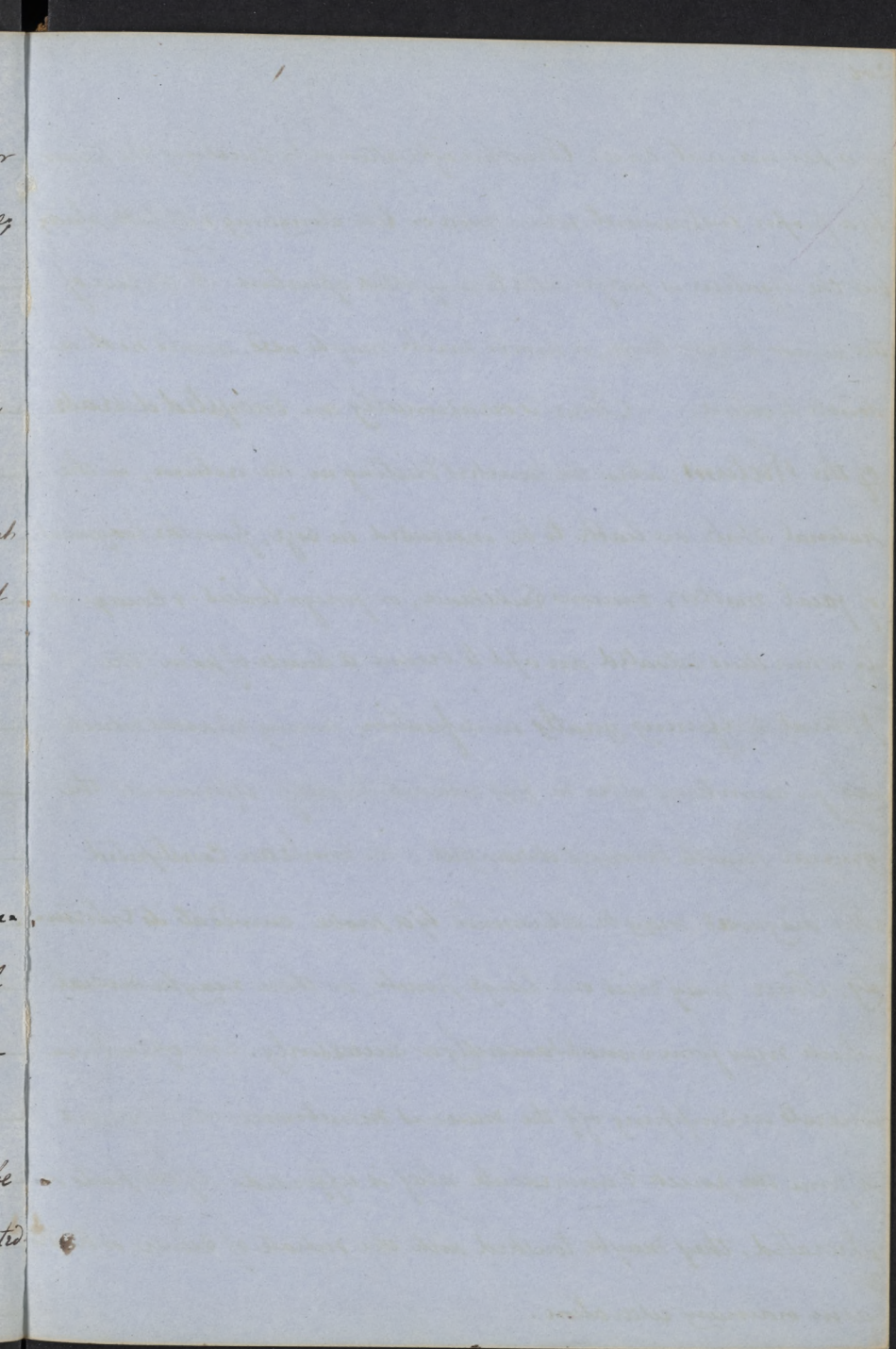
**XLI.** The internal pile, being liable to hemorrhage, is often called the bleeding pile. Hemorrhoids may vary from the size of a small pea, to that of a pullets egg. The causes of these tumors are various, but are generally those connected with impediment to the return of blood in the hemorrhoidal veins, & whenever there is any obstruction in these vessels, the blood becomes dammed up, & when the patient makes a strain in defecation, rupture of one of the veins will take place, attended with effusion of its contents. The other variety is formed from similar causes attended with derangement of the lower part of the bowels. The treatment is simple. In the ordinary forms, before the tumor has acquired much bulk; regulate the bowels & exertions properly. Give none but the milder purgatives if there is defective exertion, administer blue mass or Calomel & Ipecacuanha, avoiding all drastic purgatives. The diet should be non-stimulant, nutritious, & as concentrated as possible, & the patient should lie down a great deal. If the tumor protrude after straining at stool, & the bowel descends, let him get into the habit of evacuating them in the recumbent posture. Abutions with cold water, & the injection of cold water, frequently into the rectum will prove of

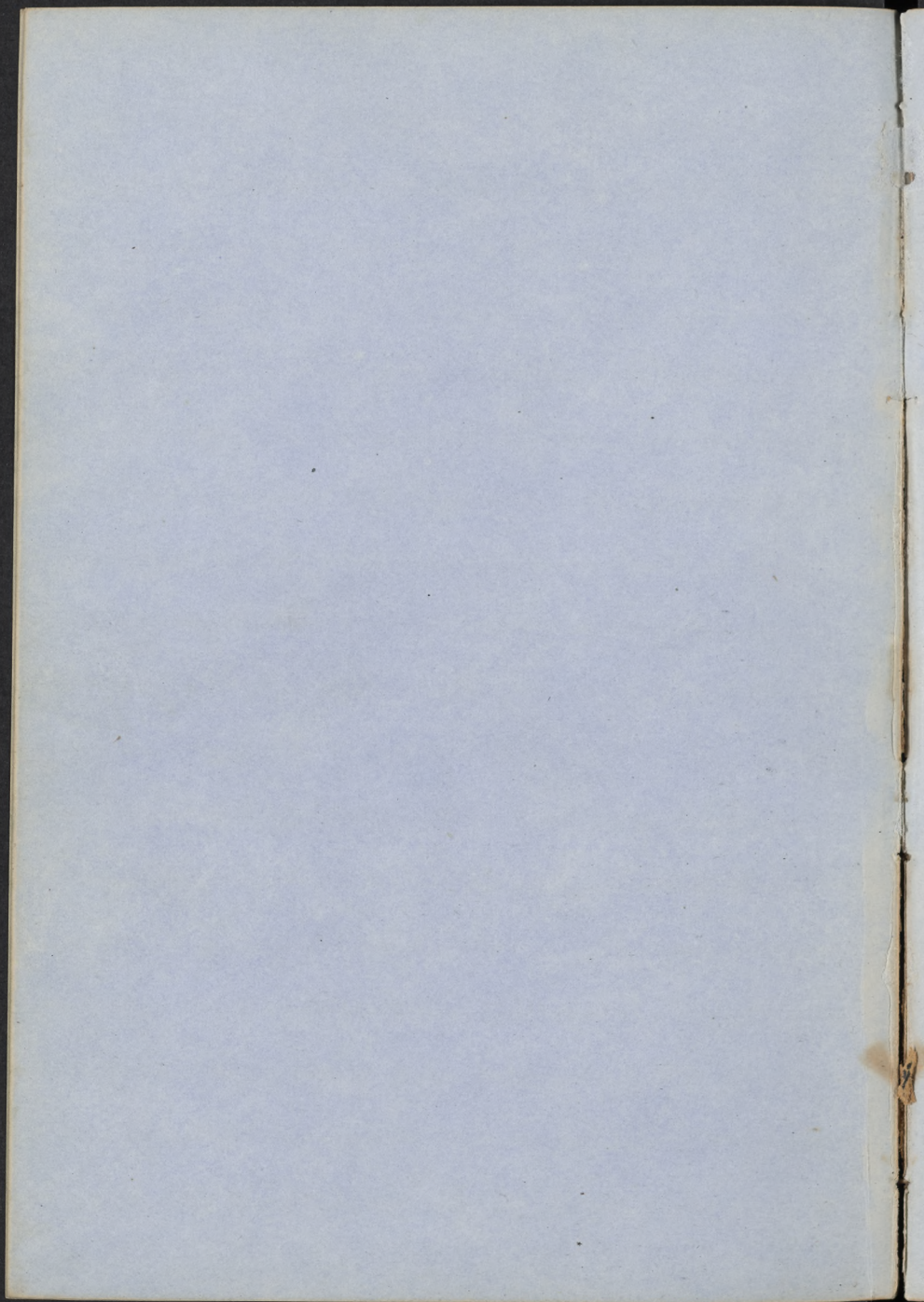


great advantage in many cases. If the patient suffers much pain  
 an injection of laudanum or morphia may be administered. If there  
 is occasional bleeding, moderate it as much as possible by means of  
 astringents. The operations for its relief, differ according to the charac-  
 teristics of the disease. The external pile when inflamed must be divided  
 by a simple incision, to let out the blood. When the tumor is internal  
 another operation is necessary, when the tumor is to be ligated. All that  
 is requisite is to make the patient force down the tumors, then placing  
 him in the proper position, seize hold of it with the tenaculum, & tie it at  
 its base, drawing the ligature as firmly as possible. Tie the ligature in  
 a double knot, & cut off the extremities of the thread near the knot; &  
 then return the bowel to its proper place, and treat the patient upon gen-  
 eral principles. If there are a number of tumors, operate only on two  
 or three at a time. The ligature will become detached in the course  
 of 3 or 4 days. Give the patient a dose of morphia immediately after  
 the operation, & apply cold water or warm water dressings to the part, giv-  
 ing occasionally, an anodyne, afterwards. Another operation consists  
 in applying to the surface a small quantity of nitric acid, but the  
 treatment is more painful than the ligation & is less likely to succeed.

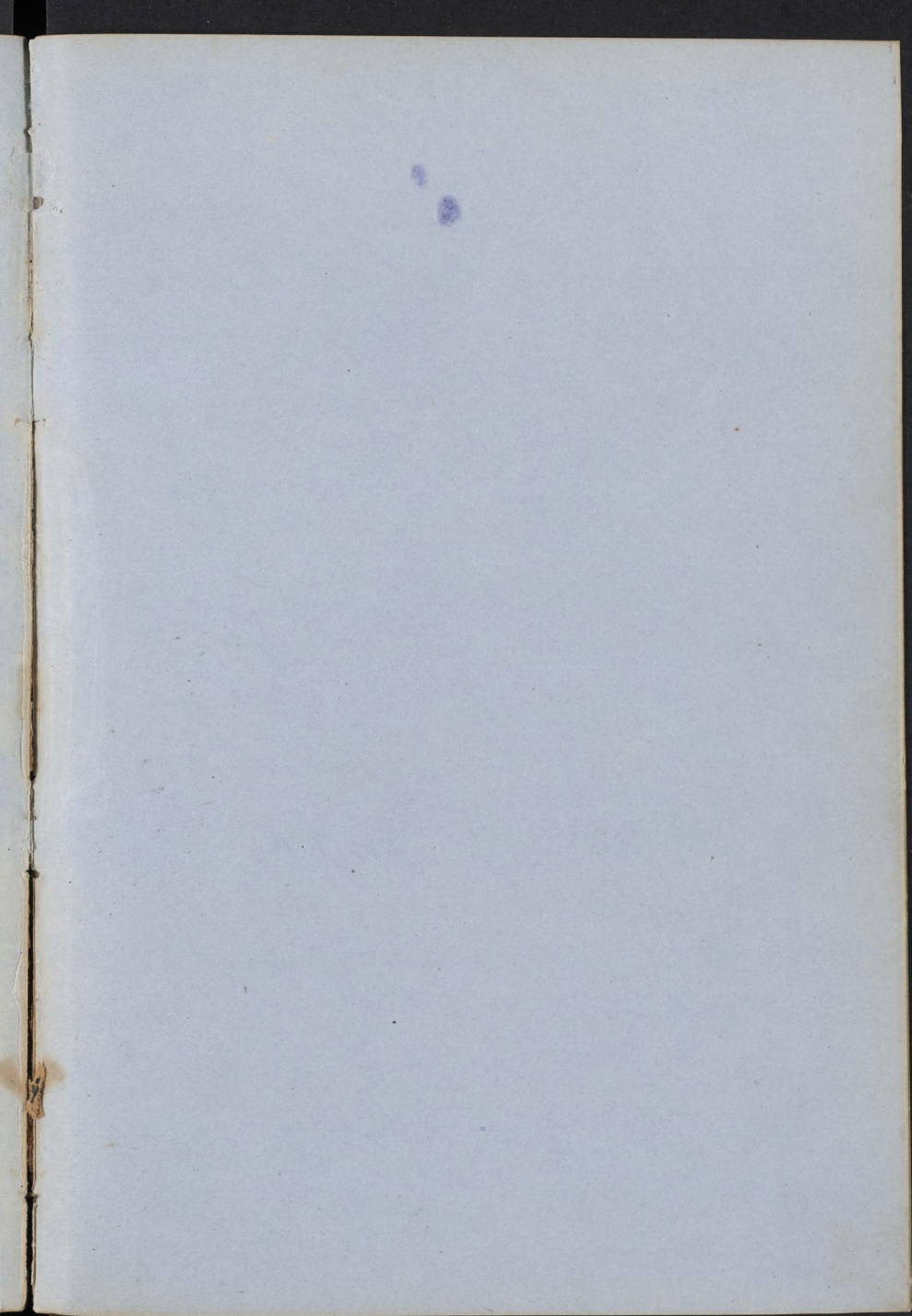
in a permanent cure. Another operation is by crushing the tumor by a proper instrument when more or less sloughing will take place, but the ligature is preferable to any other operation. If the base of the tumor is very large, a curved needle may be used, armed with a double ligature. There is occasionally an encysted disease of the Rectum, when the pouches existing in the rectum, in the natural state are liable to be increased in size, from the lodgment of fecal matter, mucous substance, or foreign bodies; & consequently when thus situated are apt to become a source of pain; the patient suffering greatly in defecation, having spasms which last for some time after he has relieved himself. Afterwards the general health becomes deranged, & the bowels are constipated. The diagnosis may be determined by a probe curved at its extremity. There may exist one large pouch, or there may be several which may form simultaneously or successively. The operation consists in snipping off the mucous membrane which serves to form the pouch & immediate relief is afforded. If the parts be ulcerated, they may be touched with the nitrate of silver, or treated as in ordinary ulceration.











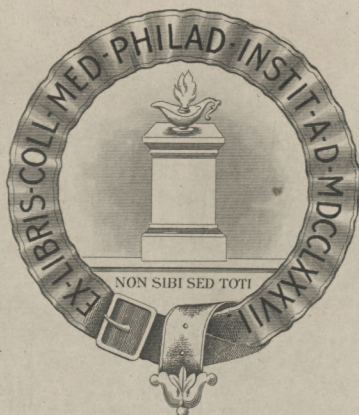
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